HB130-11

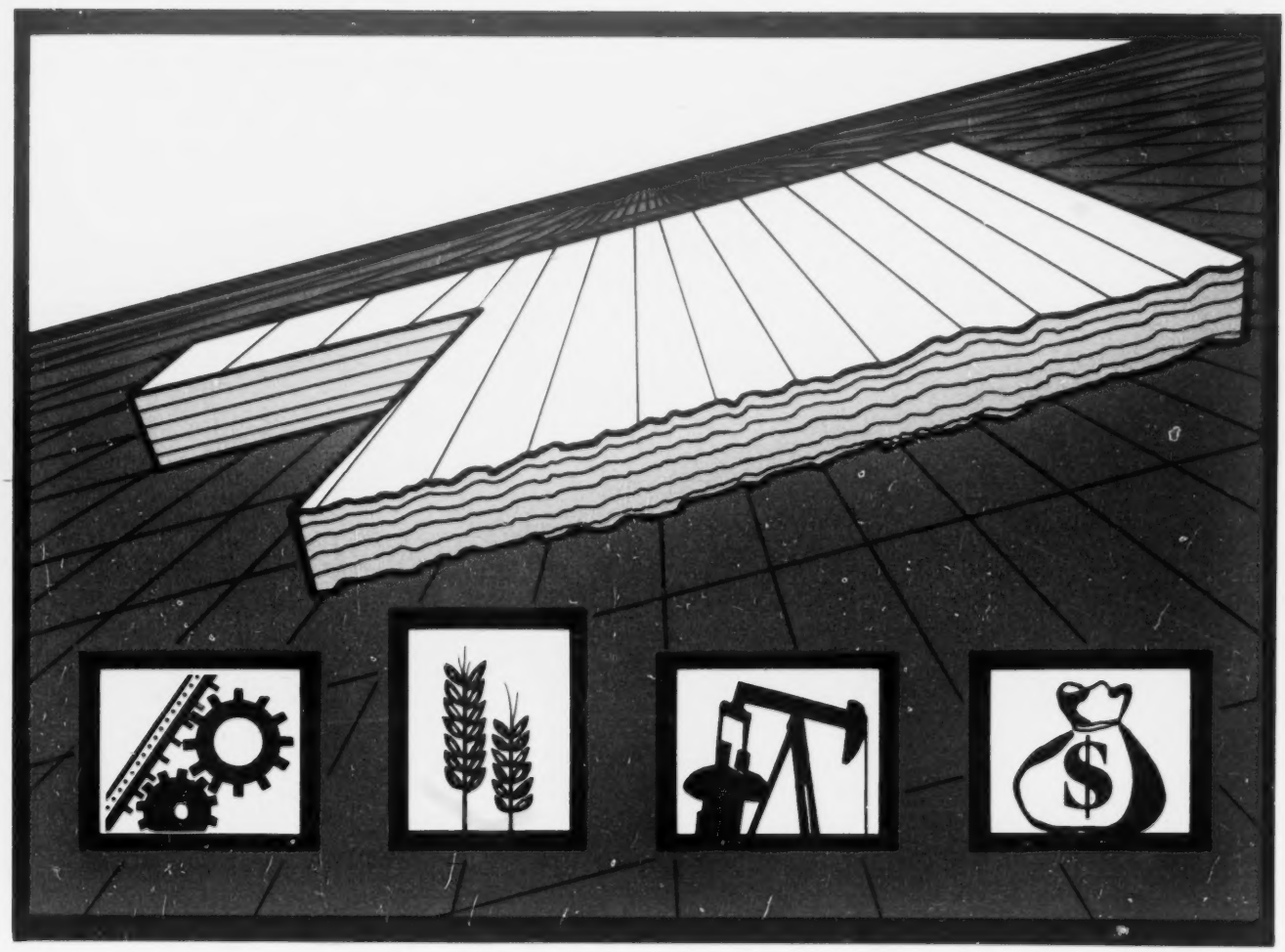
OKLAHOMA BUSINESS BULLETIN

CENTER FOR ECONOMIC AND MANAGEMENT RESEARCH
COLLEGE OF BUSINESS ADMINISTRATION
THE UNIVERSITY OF OKLAHOMA

ISSN 0030-1671

March 1990

VOL. 58, ISSUE 3



The *Oklahoma Business Bulletin* is published each month by the Center for Economic and Management Research, 307 West Brooks, Room 4, Norman, Oklahoma 73019-0450. March 1990, volume 58, number 3, ISSN 0030-1671. Second class postage paid at Norman, Oklahoma. Subscription price per year is $10.00. Postmaster: Send address changes to the *Oklahoma Business Bulletin*, 307 W. Brooks, Room 4, Norman, Oklahoma 73069.

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Address all manuscripts and correspondence to:

Oklahoma Business Bulletin
Center for Economic and Management Research
307 West Brooks, Room 4
Norman, Oklahoma 73019-0450

The *Oklahoma Business Bulletin* is published by the Center for Economic and Management Research, College of Business Administration, The University of Oklahoma.

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SUMMARY OF INDICATORS

Category	12 Mos. '89	12 Mos. '88	Dec. '89	Percentage Change 12 Mos. '89/'88	Percentage Change Dec./Nov. '89
Personal Income (Monthly Average)					
Unadjusted ($000,000)	3,834	3,599	3,960	6.5	0.4
Adjusted for CPI ($000,000)	3,092	3,044	3,140	1.6	-2.8
Crude Oil Production (000 bbl)[a]	98,771	108,946	7,665	-9.3	-15.6
Natural Gas Production (000 mcf)[a]	1,926,200	1,952,872	139,660	-1.4	-24.1
Industrial Power Sales (000,000 Kwh)[b]	8,876	8,543	763	3.9	3.0
Total Bank Deposits (Monthly Average) ($000,000)[c]					
Demand	7,414	7,556	7,576	-1.9	3.1
Savings	23,406	24,354	23,090	-3.9	0.2
Savings and Loan Associations ($000,000)					
Assets	10,424	10,572	93.2	-1.4	-7.0
Mortgage Loans Closed	494	640	37	-22.8	-3.8

Note: Includes revisions.

[a]Eleven months and November data. Natural gas includes casinghead gas.

[b]Sales of larger privately owned utility companies.

[c]Total deposits of all depository institutions.

SELECTED ECONOMIC INDICATORS

Category	12 Mos. '89	12 Mos. '88	Dec. '89	Percentage Change 12 Mos. '89/'88	Percentage Change Dec./Nov. '89
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	335,870	297,388	16,873	12.9	-33.6
Number of Units	4,050	4,074	203	-0.6	-34.3
Residential—Multi Family					
Dollar Value ($000)	27,398	11,650	469	135.2	-65.0
Number of Units	712	562	14	26.7	-78.1
Nonresidential					
Commercial ($000)	111,576	167,026	1,994	-33.2	-66.8
Industrial ($000)	24,668	37,116	851	-33.5	-48.3
Institutional ($000)	84,693	53,792	1,637	57.4	562.8
Nonbuilding					
Streets and Highways ($000)	263,110	280,383	23,967	-6.2	29.9
All Other Nonbuilding ($000)	6,166	6,275	181	-1.7	-42.0
Total Construction ($000)	853,481	853,630	45,971	0.0	-14.0
EMPLOYMENT TRENDS[a]					
Total Labor Force (000)[b]	1,526.4	1,533.0	1,518.9	-0.4	-0.4
Total Employment (000)	1,440.3	1,431.0	1,440.8	0.6	-1.0
Unemployment Rate (%)	5.6	6.6	5.1	—	—
Wage and Salary Employment (000)	1,140.6	1,132.7	1,154.3	0.7	0.1
Manufacturing (000)	164.2	162.8	165.5	0.8	-0.1
Mining (000)	44.1	44.9	45.6	-1.8	1.6
Government (000)	248.0	247.5	250.0	0.2	0.2
Contract Construction (000)	34.1	34.4	34.0	-0.9	-3.4
Services (000)	253.0	248.0	255.6	2.0	-1.0
Retail Trade (000)	218.3	215.0	224.0	1.5	1.7
Average Weekly Hours (Per Worker)					
Manufacturing	41.6	41.1	43.0	1.2	1.4
Average Weekly Earnings ($ Per Worker)					
Manufacturing	440.46	425.34	452.36	3.6	1.5
Contract Construction	426.14	428.70	406.20	-0.6	-11.4
Retail Trade[c]	191.98	190.92	188.97	0.6	-0.6

Note: Includes revisions in some previous months. All December 1989 Employment data is preliminary.

[a]Preliminary.

[b]Civilian Labor Force. Labor Force employment and unemployment rate refer to place of residence, non-agricultural wage and salary employment refers to place of work.

[c]Excluding eating and drinking places.

RETAIL TRADE IN METRO AREAS AND STATE
($000)

Retail Trade	12 Mos. '89 Adjusted	12 Mos. '88 Adjusted	Dec. '89 Adjusted	Dec. '89 Unadjusted	Percentage Change 12 Mos. '89/'88 Adjusted	Percentage Change Dec./Nov. '89 Adjusted	Percentage Change Dec./Nov. '89 Unadjusted
OKLAHOMA CITY MSA							
Food Group	1,967,667	1,849,573	145,589	151,397	6.4	-19.8	-19.2
Apparel Group	342,323	331,453	28,217	50,221	3.3	-3.7	65.8
General Merchandise Group	1,169,906	1,207,292	96,767	174,028	-3.1	5.0	79.9
Furniture Group	288,970	286,580	22,791	29,980	0.8	-5.6	11.4
Lumber Group	192,934	214,391	17,020	13,748	-10.0	-6.7	-19.8
Auto Dealers	1,354,685	1,682,671	81,211	76,668	-19.5	-19.4	-15.6
Gasoline	421,457	396,210	34,470	32,080	6.4	-5.0	-6.4
All Other	458,731	394,615	56,029	54,175	16.2	36.7	31.4
Total	6,196,673	6,362,785	482,094	582,297	-2.6	-7.9	11.0
TULSA MSA							
Food Group	1,471,381	1,395,847	129,899	140,653	5.4	5.8	22.5
Apparel Group	236,216	239,526	21,314	36,575	-1.4	3.1	70.1
General Merchandise Group	925,456	878,080	86,018	150,505	5.4	8.7	79.2
Furniture Group	219,015	215,314	17,357	21,484	1.7	-7.9	14.6
Lumber Group	185,147	175,302	15,393	13,720	5.6	-9.2	-19.7
Auto Dealers	850,158	1,056,402	51,497	48,133	-19.5	-18.2	-15.6
Gasoline	258,423	242,940	21,537	19,657	6.4	-2.9	-6.4
All Other	254,755	253,923	27,168	17,972	0.3	8.2	-14.5
Total	4,400,551	4,457,334	370,183	448,699	-1.3	0.4	26.3
ENID MSA							
Food Group	106,844	101,456	8,568	9,363	5.3	4.0	16.9
Apparel Group	19,933	19,624	1,654	2,396	1.6	-2.0	43.6
General Merchandise Group	90,207	88,630	8,204	14,644	1.8	3.0	75.7
Furniture Group	14,289	15,607	1,105	1,348	-8.4	11.3	40.1
Lumber Group	12,255	11,351	1,021	795	8.0	-1.0	-29.3
Auto Dealers	60, 312	74,864	3,655	3,409	-19.4	-17.0	-15.6
Gasoline	24,181	22,717	1,993	1,840	6.4	-3.8	-6.4
All Other	22,675	21,789	2,549	1,691	4.1	28.7	16.3
Total	350,696	356,038	28,749	35,486	-1.5	1.4	28.8
LAWTON MSA							
Food Group	147,000	157,324	11,016	11,353	-6.6	-1.5	5.5
Apparel Group	25,336	24,766	2,236	3,597	2.3	-2.6	64.8
General Merchandise Group	147,179	150,156	12,660	22,631	-2.0	7.8	77.8
Furniture Group	24,559	27,155	1,856	2,182	-9.6	10.0	20.7
Lumber Group	22,653	22,840	1,860	1,374	-0.8	-3.3	-27.9
Auto Dealers	106,991	132,850	6,444	6,053	-19.5	-18.6	-15.6
Gasoline	36,965	34,781	3,096	2,810	6.3	-4.6	-6.4
All Other	20,305	23,400	180	255	-13.2	-68.6	-73.4
Total	530,988	573,272	39,348	50,255	-7.4	-3.0	24.0
MUSKOGEE AREA							
Food Group	116,379	111,940	10,381	10,892	4.0	7.1	22.2
Apparel Group	25,596	24,229	2,039	3,265	5.6	-2.5	59.1
General Merchandise Group	69,928	70,690	6,746	12,879	-1.1	10.6	119.2
Furniture Group	11,775	11,107	864	1,100	6.0	-12.6	10.2
Lumber Group	13,166	12,010	1,395	1,042	9.6	1.6	-12.4
Auto Dealers	52,790	65,532	3,113	2,984	-19.4	-20.5	-15.6
Gasoline	26,935	25,287	2,203	2,050	6.5	-5.0	-6.4
All Other	19,750	19,882	2,078	2,110	-0.7	-3.8	31.5
Total	336,319	340,677	28,819	36,322	-1.3	0.6	37.8
STATE[a]							
Durable Goods	5,041,920	5,832,661	341,276	343,169	-13.6	-18.1	-16.2
Auto Dealers	3,173,610	3,939,059	189,075	179,481	-19.4	-19.9	-15.6
Accessory Dealers	384,793	370,206	32,706	31,964	3.9	-0.4	4.5
Total Automotive	3,558,403	4,309,265	221,781	211,445	-17.4	-17.5	-13.1
Furniture	494,712	407,672	37,411	42,274	21.4	-54.9	-50.0
Household Appliances	266,445	291,867	23,265	28,741	-8.7	2.9	26.3
Total Furniture and Appliances	761,157	699,539	60,676	71,015	8.8	-42.6	-33.8
Lumber and Building Materials	566,163	582,747	42,049	36,663	-2.8	-18.0	-28.5
Hardware Stores	69,888	67,912	5,917	6,626	2.9	1.4	20.7
Total Lumber, Building Materials & Hardware	636,051	650,659	47,966	43,289	-2.2	-16.1	-23.8
Nondurable Goods	11,568,208	11,014,087	1,082,970	1,362,696	5.0	13.7	44.5
Apparel	872,227	859,258	81,213	135,134	1.5	7.0	76.4
Drug Stores	440,878	423,685	37,837	50,996	4.1	1.8	33.9
Eating and Drinking Places	1,725,712	1,621,829	150,786	151,624	6.4	1.5	8.4
Food Group	3,694,665	3,565,291	321,886	354,114	3.6	10.9	24.7
Gasoline	1,235,405	1,161,118	100,668	94,027	6.4	-5.0	-6.4
General Merchandise Group	2,776,001	2,595,314	272,385	486,871	7.0	24.6	101.1
Total Retail Trade	16,610,128	16,846,748	1,424,246	1,705,865	-1.4	4.0	26.1

[a]Total includes data for categories not shown in the table.

RETAIL TRADE IN SELECTED CITIES
($000)

Retail Trade	12 Mos. '89 Adjusted	12 Mos. '88 Adjusted	Dec. '89 Adjusted	Dec. '89 Unadjusted	Percentage Change 12 Mos. '89/'88 Adjusted	Percentage Change Dec./Nov. '89 Adjusted	Percentage Change Dec./Nov. '89 Unadjusted
Ada	144,964	148,263	11,729	14,740	-2.2	-3.2	26.4
Altus	140,523	150,100	10,543	12,290	-6.4	-5.6	14.0
Alva	42,099	45,276	3,403	3,822	-7.0	-0.9	15.7
Anadarko	46,704	49,525	3,598	4,328	-5.7	-4.8	17.8
Ardmore	209,537	219,287	16,756	20,862	-4.4	-2.9	26.8
Bartlesville	291,724	289,537	26,826	31,580	0.8	6.9	28.3
Blackwell	33,926	36,150	2,568	2,905	-6.2	-8.4	8.0
Broken Arrow	303,764	311,617	25,360	27,054	-2.5	-0.8	11.2
Chickasha	117,047	124,505	9,750	10,960	-6.0	0.2	18.1
Clinton	75,573	81,069	6,194	6,751	-6.8	-1.6	11.1
Cushing	53,490	57,857	4,294	5,113	-7.5	-0.8	18.7
Del City	106,623	113,632	8,375	8,534	-6.2	-4.8	3.6
Duncan	190,008	208,348	16,093	18,238	-8.8	3.0	22.0
Durant	106,911	111,867	8,754	10,474	-4.4	-6.4	21.1
Edmond	277,887	272,637	21,349	23,981	1.9	-8.0	-1.1
Elk City	90,184	94,178	7,360	8,394	-4.2	-3.1	14.7
El Reno	101,294	105,713	8,212	8,678	-4.2	-3.2	11.1
Guthrie	67,007	72,258	4,955	5,010	-7.3	-8.0	-8.3
Guymon	59,770	61,380	4,327	4,983	-2.6	-14.1	3.7
Henryetta	41,908	44,271	3,347	3,926	-5.3	1.1	16.9
Hobart	29,143	31,572	2,325	2,427	-7.7	-3.4	3.1
Holdenville	26,348	28,655	2,100	2,398	-8.1	-5.5	10.1
Hugo	46,041	47,740	3,975	4,486	-3.6	-5.4	16.9
Idabel	62,906	63,890	5,437	5,935	-1.5	0.1	13.8
Lawton	494,781	539,486	37,333	46,957	-8.3	-2.8	24.6
McAlester	147,829	155,701	12,032	13,494	-5.1	-5.1	14.1
Miami	120,352	127,338	8,313	10,686	-5.5	-19.0	7.6
Midwest City	531,640	561,367	44,475	54,837	-5.3	4.1	31.9
Moore	183,941	205,202	15,050	16,210	-10.4	-0.7	9.2
Muskogee	310,207	315,904	26,862	33,394	-1.8	5.6	39.8
Norman	581,657	610,974	47,019	56,132	-4.8	2.7	30.8
Oklahoma City	3,133,292	3,277,331	259,701	329,178	-4.4	4.6	30.2
Okmulgee	63,923	67,652	5,304	5,546	-5.5	1.6	7.2
Pauls Valley	60,792	64,788	5,194	5,616	-6.2	-1.0	13.3
Pawhuska	21,760	22,595	1,767	2,115	-3.7	2.0	26.6
Ponca City	208,670	204,796	16,582	19,409	1.9	-9.7	8.4
Poteau	72,183	75,255	6,571	7,311	-4.1	6.5	24.6
Sand Springs	110,205	110,399	9,395	11,175	-0.2	5.0	29.1
Sapulpa	107,224	110,831	8,782	10,038	-3.3	-0.2	18.3
Seminole	53,447	58,098	3,933	4,888	-8.0	-5.6	20.9
Shawnee	266,547	254,162	22,100	28,268	4.9	1.3	27.2
Stillwater	213,281	218,496	16,707	19,605	-2.4	-3.8	13.0
Tahlequah	93,516	94,500	7,910	8,433	-1.0	-1.3	9.2
Tulsa	3,224,254	3,273,572	283,496	346,481	-1.5	3.9	31.4
Watonga	17,048	17,378	1,581	1,836	-1.9	51.6	77.0
Weatherford	82,241	85,173	6,721	6,970	-3.4	-2.7	7.2
Wewoka	16,431	17,767	1,466	1,486	-7.5	5.5	17.9
Woodward	128,189	135,092	10,235	11,618	-5.1	-2.1	10.1
Total Selected Cities	12,908,791	13,373,184	1,076,159	1,299,552	-3.5	1.6	25.2

Sources for all tables: Local utilities companies; 10th Federal Reserve District Member Banks; Federal Home Loan Bank of Topeka; Oklahoma Employment Security Commission; United States Department of Commerce, Construction Statistics Division; Oklahoma Department of Transportation, *Progressive Report of the Transportation Director*; Center for Economic and Management Research, College of Business Administration, The University of Oklahoma. The data for all tables were compiled by Marjorie E. Earley, Statistician for CEMR and Brian Hickey, Research Assistant.

Printed by University Printing Services. Seven hundred copies were prepared and distributed at a total of $500.00. Cost to the taxpayers of the State of Oklahoma: $312.00. March 1990.
The *Oklahoma Business Bulletin* is published each month by the Center for Economic and Management Research, 307 West Brooks, Room 4, Norman, Oklahoma 73019. March 1990, volume 58, number 3. Second class postage paid at Norman, Oklahoma 73070. Postmaster: Send address changes to the *Oklahoma Business Bulletin*, 307 W. Brooks, Room 4, Norman, Oklahoma 73069.

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ENID AND LAWTON MSAs

Category	12 Mos. '89	12 Mos. '88	Dec. '89	Percentage Change 12 Mos. '89/'88	Percentage Change Dec./Nov. '89
ENID MSA					
Employment (Number)[a]					
Labor Force[b]	28,110	28,773	27,825	-1.7	-0.4
Total Employment	26,802	27,156	26,650	-1.3	-0.9
Unemployment Rate (%)	4.6	5.6	4.2	—	—
Wage and Salary Employment	21,292	21,458	21,700	-0.8	0.5
Wholesale and Retail Trade	6,025	6,242	6,200	-3.5	1.6
Manufacturing	1,500	1,542	1,400	-2.7	0.0
Industrial Power Sales (000 Kwh)	440,261	460,854	26,042	-4.5	-28.1
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	1,288	1,205	140	6.9	-17.6
Number of Units	12	11	1	9.1	-50.0
Residential—Multi Family					
Dollar Value ($000)	300	0	0	—	0.0
Number of Units	6	0	0	—	0.0
Nonresidential					
Commercial ($000)	4,944	1,052	2	370.1	-96.9
Industrial ($000)	159	0	0	—	0.0
Institutional ($000)	0	300	0	—	0.0
Nonbuilding					
Streets and Highways ($000)	5,358	2,692	0	99.0	0.0
All Other Nonbuilding ($000)	362	152	5	138.2	—
Total Construction ($000)	12,411	5,401	147	129.8	-37.2
LAWTON MSA					
Employment (Number)[a]					
Labor Force[b]	48,996	48,925	49,075	0.1	-0.6
Total Employment	46,667	46,117	47,025	1.2	-0.8
Unemployment Rate (%)	4.8	5.7	4.2	—	—
Wage and Salary Employment	34,200	33,650	35,000	1.6	0.3
Industrial Power Sales (000 Kwh)	208,763	200,704	17,307	4.0	-5.7
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	6,055	12,276	175	-50.7	-2.7
Number of Units	59	160	1	-63.1	0.0
Residential—Multi Family					
Dollar Value ($000)	0	180	0	—	0.0
Number of Units	0	6	0	—	0.0
Nonresidential					
Commercial ($000)	2,375	5,149	0	-53.9	—
Industrial ($000)	191	830	0	-77.0	0.0
Institutional ($000)	0	4,390	0	—	0.0
Nonbuilding					
Streets and Highways ($000)	2,392	7,962	0	-70.0	0.0
All Other Nonbuilding ($000)	38	4	0	E	0.0
Total Construction ($000)	11,049	30,790	175	-64.1	-77.5

Note: Includes revisions. [a]Preliminary. [b]Civilian Labor Force. E = Exceeds 600 percent.

MUSKOGEE MA

Category	12 Mos. '89	12 Mos. '88	Dec. '89	Percentage Change 12 Mos. '89/'88	Percentage Change Dec./Nov. '89
Employment (Number)[a]					
Labor Force[b]	31,467	32,046	30,825	-1.8	-0.1
Total Employment	29,329	29,038	29,025	1.0	-0.9
Unemployment Rate (%)	6.8	9.4	5.8	—	—
Industrial Power Sales (000 Kwh)	174,767	172,966	15,140	1.0	-1.7
Port of Muskogee					
Tons in	125,399	81,945	10,516	53.0	16.0
Tons out	85,978	41,830	7,613	105.5	-43.2
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	3,244	1,289	0	151.7	0.0
Number of Units	49	24	0	104.2	0.0
Residential—Multi Family					
Dollar Value ($000)	2,102	524	0	301.1	0.0
Number of Units	84	24	0	250.0	0.0
Nonresidential					
Commercial ($000)	1,121	408	0	174.8	0.0
Industrial ($000)	0	15	0	—	0.0
Institutional ($000)	277	440	0	-37.0	0.0
Nonbuilding					
Streets and Highways ($000)	1,098	4,181	0	-73.7	0.0
All Other Nonbuilding ($000)	0	5	0	—	0.0
Total Construction ($000)	7,842	6,861	0	14.3	0.0

Note: Includes revisions. [a]Preliminary. [b]Civilian Labor Force.

TULSA MSA

Category	12 Mos. '89	12 Mos. '88	Dec. '89	Percentage Change 12 Mos. '89/'88	Percentage Change Dec./Nov. '89
Employment (Number)[a]					
Labor Force[b]	344,317	341,575	345,600	0.8	-0.4
Total Employment	324,142	316,683	328,000	2.4	-0.6
Unemployment Rate (%)	5.9	7.3	5.0	—	—
Wage and Salary Employment	302,108	294,750	307,900	2.5	0.3
Manufacturing	49,792	49,492	50,900	0.6	1.0
Mining	14,517	14,258	14,400	1.8	-0.7
Government	36,875	36,775	36,700	0.3	-1.1
Wholesale and Retail Trade	71,142	70,600	73,500	0.8	1.9
Average Weekly Earnings					
Manufacturing ($ Per Worker)	448.19	448.72	461.74	-0.1	2.6
Industrial Power Sales (000 Kwh)	2,412,385	2,256,616	206,337	6.9	0.7
Mortgage Loans Closed ($000,000)[c]	188	234	16	-19.5	-9.6
Bank Deposits ($000,000)[d]					
Demand Deposits	937	888	1,033	5.4	6.6
Time and Savings Deposits	2,068	2,164	2,155	-4.4	2.8
Air Transportation					
Passengers Enplaning (Number)	1,438,287	1,375,113	119,204	4.6	-0.5
Passengers Deplaning (Number)	1,467,676	1,395,516	118,317	5.2	-3.0
Freight (Tons)	27,473	22,365	2,330	22.8	-10.4
Water Transportation					
Tulsa Port of Catoosa					
Tons In	656,250	493,805	67,829	32.9	82.8
Tons Out	1,227,401	1,205,227	136,607	1.8	80.2
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	140,245	106,532	8,243	31.6	-21.6
Number of Units	1,776	1,423	101	24.8	-26.3
Residential—Multi Family					
Dollar Value ($000)	1,128	2,550	106	-55.8	—
Number of Units	34	110	2	-69.1	—
Nonresidential					
Commercial ($000)	24,706	59,163	478	-58.2	-59.4
Industrial ($000)	18,532	19,156	787	-3.3	-49.6
Institutional ($000)	15,367	20,343	119	-24.5	-35.7
Nonbuilding					
Streets and Highways ($000)	37,044	49,114	2,541	-24.6	—
All Other Nonbuilding ($000)	3,517	3,561	176	-1.2	11.4
Total Construction	240,539	260,418	12,450	-7.6	-8.5

Note: Includes revisions.

[a]Preliminary.

[b]Civilian Labor Force.

[c]By Savings and Loan Associations.

[d]Deposits of large commercial banks (accounted for 50 percent of all commercial bank deposits as of December 31, 1988).

OKLAHOMA CITY MSA

Category	12 Mos. '89	12 Mos. '88	Dec. '89	Percentage Change 12 Mos. '89/'88	Percentage Change Dec./Nov. '89
Employment (Number)[a]					
Labor Force[b]	492,450	490,517	490,500	0.4	-0.7
Total Employment	469,200	470,408	468,800	-0.3	-1.2
Unemployment Rate (%)	4.8	5.6	4.2	—	—
Wage and Salary Employment	407,592	405,458	411,900	0.5	-0.1
Manufacturing	49,475	48,683	49,500	1.6	-0.8
Mining	10,267	11,783	10,200	-12.9	-1.0
Government	97,558	95,783	100,700	1.8	0.8
Wholesale and Retail Trade	101,375	100,992	102,900	0.4	0.0
Average Weekly Earnings					
Manufacturing ($ Per Worker)	491.78	474.82	501.98	3.6	1.5
Industrial Power Sales (000 Kwh)	1,257,585	1,216,176	104,848	3.4	1.4
Mortgage Loans Closed ($000,000)[c]	91	103	7	-11.8	20.7
Bank Deposits ($000,000)[d]					
Demand Deposits	808	829	859	-2.5	6.5
Time and Savings Deposits	1,151	1,151	1,140	0.0	0.6
Air Transportation					
Passengers Enplaning (Number)	1,555,623	1,509,824	129,689	3.0	-0.2
Passengers Deplaning (Number)	1,571,144	1,520,302	127,045	3.3	-2.7
Freight Enplaned (Tons)	7,719	7,925	770	-2.6	-1.5
Freight Deplaned (Tons)	11,224	10,765	1,347	4.3	7.0
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	165,363	133,631	8,077	23.7	-40.1
Number of Units	1,909	1,875	93	1.8	-40.4
Residential—Multi Family					
Dollar Value ($000)	22,537	1,374	0	E	—
Number of Units	536	75	0	E	—
Nonresidential					
Commercial ($000)	62,819	71,154	1,353	-11.7	-56.0
Industrial ($000)	4,374	5,539	0	-21.0	—
Institutional ($000)	59,835	18,848	1,415	217.5	E
Nonbuilding					
Streets and Highways ($000)	47,230	68,023	3,230	-30.6	-77.5
All Other Nonbuilding ($000)	1,951	2,118	0	-7.9	—
Total Construction ($000)	364,107	300,688	14,075	21.1	-55.9

Note: Includes revisions.

[a]Preliminary.

[b]Civilian Labor Force.

[c]By Savings and Loan Associations.

[d]Deposits of large commercial banks (accounted for 35 percent of all commercial bank deposits as of December 31, 1988).

E = Exceeds 600 percent.

Business Highlights

NEIL J. DIKEMAN, JR.

THE BIG NEWS FOR 1989 IS that Oklahoma's economy continued the modest upturn begun in 1988 which suggests that 1990 may be even a better year economically speaking than 1989. First and of prime importance was the fact that total personal income for the year in terms of current dollars was 6.5 percent ahead of 1988 which meant that after adjustment for inflation, the purchasing power of the average Oklahoma consumer rose approximately 1.6 percent. A part of this increase is attributable to an increase of 0.7 percent (or 7,900 jobs) in wage and salary employment which was accompanied by a similar rise in wage and salary income. Employment gains were noted in all sectors except mining where wage and salary employment declined by 1.8 percent and contract construction which dropped by 0.9 percent. The largest employment gains occurred in the trades and services which together, increased 1.8 percent over their 1988 levels.

The 0.8 percent rise in manufacturing employment during 1989 over 1988 was particularly welcome in that it indicates continuing recovery in manufacturing activity from the low level experienced in 1987. Further indication that the recovery of manufacturing is now underway is provided by the 3.9 percent increase in industrial power sales during the year.

The banking industry which has undergone some difficult times during the past five years also appears to have overcome many of its problems as witnessed by the fact that deposits in banks have risen more than 1 percent and assets have increased by more than 2.8 percent. The increase in bank deposits during 1989 is in direct contrast to deposits in all depository institutions (i.e., banks, thrift institutions and credit unions) which declined 3.4 percent. Oklahoma banks also showed significant improvements in other areas such as in profits where the gains in bank operations pushed the profit level to its highest point in the past six years. In short, it now appears that the banking industry has shaken off most of the problems induced by the collapse of crude oil and natural gas prices.

Retail sales performed very well in the non-durable goods categories where sales of these items rose by 5 percent during the year. Of even more significance is the fact that increases occurred in all non-durable merchandise lines with the sharpest gains occurring in General Merchandise, Service Station and Restaurant sales. In fact, all lines reversed 1988 decreases except General Merchandise stores where a third consecutive annual increase was registered. Much of the rise in non-durable goods sales can be attributed to sharp gains in December which tended generally to be more favorable to sales of non-durable goods than to sales of durable goods. The most notable gain in December was the 101 percent rise in General Merchandise sales. Chart 1 traces monthly non-durable goods sales since 1987.

As has been the experience throughout the year, sales of durable goods lagged behind year ago totals by 13.6 percent due principally to a decline of 19.4 percent automobile sales and 8.7 percent in appliance sales. These losses were partially offset by a large increase in the dollar volume of furniture sales (21.4 percent) and more modest increases in sales of auto accessories and hardware. The only durable goods merchandise lines which experienced sales increases during December were appliance and hardware stores and in both cases these gains were only slightly more than was seasonally expected (See Chart 2).

Considering retail sales during 1989 in total, the sharp decrease in durable goods sales more than offset the increase in non-durable goods sales and as a result, the total was 1.4 percent

CHART 1

Total Nondurable Goods — Oklahoma
by month 1987-1989
($000,000,000)

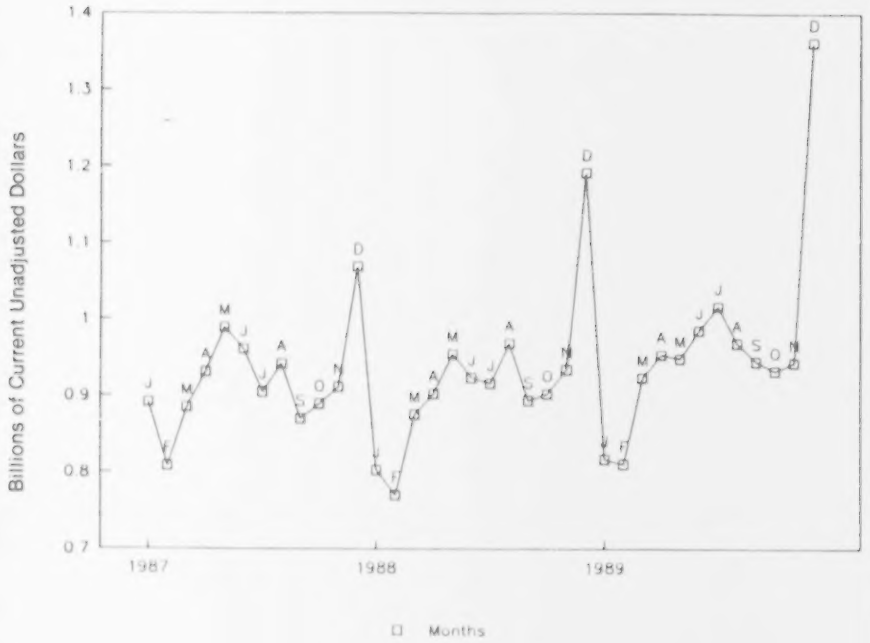
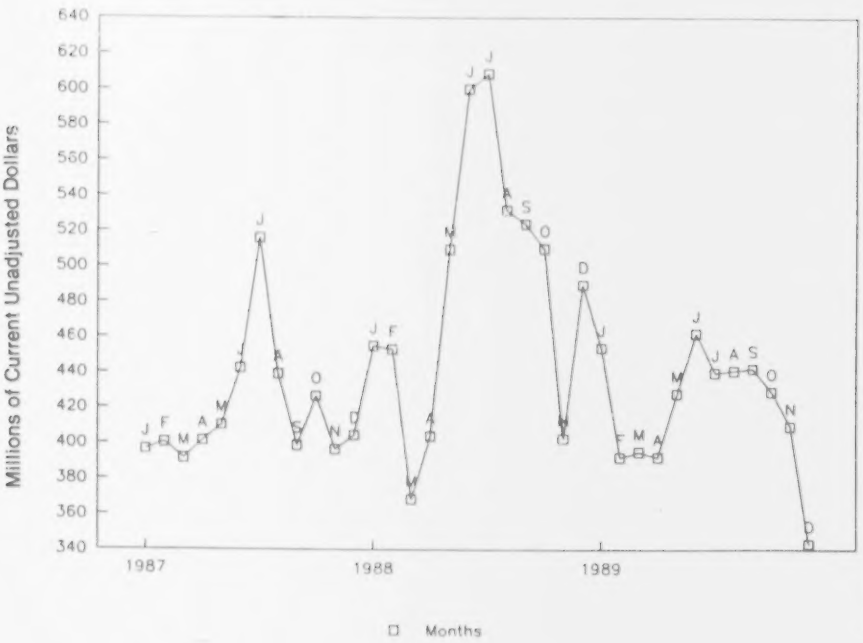


CHART 2

Total Durable Goods — Oklahoma
by month 1987-1989
($000,000)



below the 1988 total. This decline continued the erratic pattern of retail sales during the past six years in which increases during one year were followed by decreases in the following year. This pattern is shown in Chart 3 and Table 1.

Construction activity, which had been running ahead of 1988 during most of the year, turned down by 14 percent in December thus leaving the dollar volume of this economic sector for the year at about the same level as in 1988. Decreases during 1989 were experienced in all types of construction except for institutional building and street and highway construction. The nearly six-fold increase in the dollar volume of institutional building experienced in December raised the total for the year 57.4 percent ahead of the 1988 total. Conversely, the near 30 percent rise in street and highway building during December was not sufficient to counteract decreases in the earlier part of the year and as a result, street and highway construction was 6.2 percent less than in 1988. For the year, the dollar volume of single family dwelling construction exceeded the 1988 level by 12.9 percent while the investment in multifamily dwellings was more than 135 percent ahead of a year ago. As noted earlier, institutional building activity also exceeded the year ago level by more than 57 percent. All other types of construction continued to lag behind last year with both commercial and industrial building activity falling more than 33 percent behind 1988 levels and other nonbuilding expenditures running 1.7 percent below those of last year.

The outlook for 1990 remains guardedly optimistic despite a somewhat disappointing year for retail sales and the failure of construction activity to retain the vigor it displayed during the first three quarters of the year. The fact that personal income exhibited relatively good growth and that the banking industry has apparently solved its problems provide some of the basis for optimism. Of equal importance to these factors, however, is the

recent increase in wage and salary employment—especially in the manufacturing sector. This latter indicator strongly indicates that demand for Oklahoma-made products is once again on the rise.

Neil J. Dikeman, Jr. is Director for the Center for Economic and Management Research.

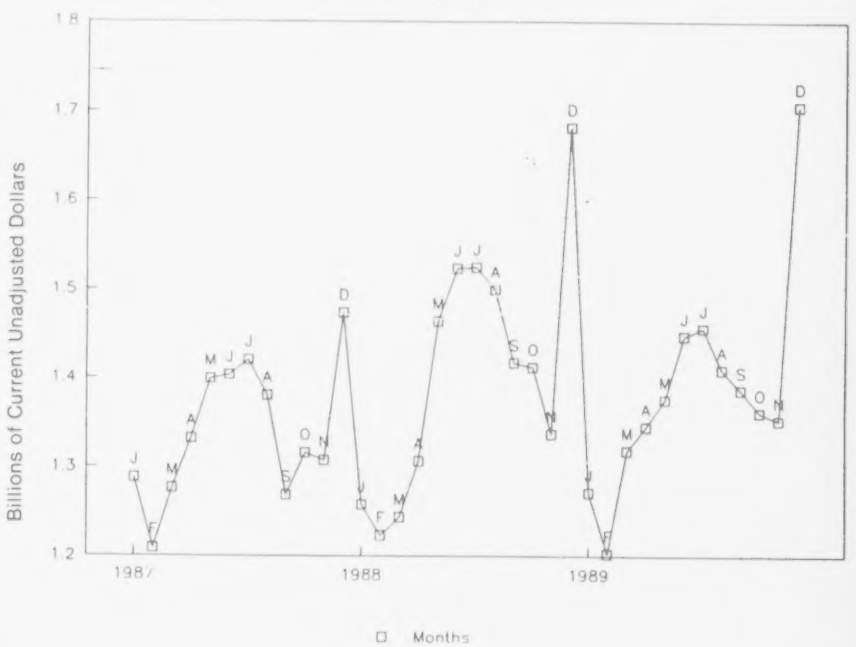
TABLE 1

Annual Retail Sales by Broad Category
Oklahoma
1985-1989

	Years				
Annual Sales Total	**1985**	**1986**	**1987**	**1988**	**1989**
Autos	3,717,498	4,556,521	3,250,543	3,939,059	3,558,403
Furniture	343,330	328,904	373,824	407,672	494,712
Appliances	255,663	235,919	284,607	291,867	266,445
Lumber	570,787	627,286	574,895	582,747	566,163
Hardware	69,596	63,532	63,693	67,912	69,888
Total Durable Goods	5,664,793	6,461,734	5,030,186	5,832,661	5,041,920
Gasoline	1,024,588	691,973	1,168,303	1,161,118	1,235,405
Apparel	629,357	628,757	888,550	859,258	872,227
Drug Stores	419,900	498,761	450,904	423,685	440,828
General Merchandise	2,411,599	1,904,519	2,474,226	2,595,314	2,776,001
Eat & Drink	1,682,869	1,871,701	1,599,614	1,621,829	1,725,712
Food Stores	4,067,541	4,679,484	3,653,049	3,565,291	3,694,665
Total Nondurable Goods	11,012,081	11,022,029	11,069,917	11,014,087	11,568,208
Total Sales	16,676,874	17,483,763	16,100,103	16,846,748	16,610,128
Total Sales Less Automobile Sales	12,959,376	12,927,242	12,849,560	12,907,689	13,051,725

CHART 3

Total Retail Sales — Oklahoma
by month 1987-1989
($000,000,000)



An Analysis of Oklahoma's Economy

CRAIG KNUTSON

THE FOLLOWING IS AN analysis of the economy for Oklahoma and its two largest metros during the 3rd quarter 1989. The analysis will cover seven subsectors of the economy, with the subsector carrying the greatest amount of weight first, followed by the remaining subsectors in decreasing importance to the GBI. A look at the 4th quarter 1989 is offered based upon preliminary data and professional intuition.

Energy

The Energy Subsector declined a scant 0.7 percent from the 3rd quarter of 1988 and was off 2.8 percent from the 3rd quarter of 1987. This quarter's decline represents the 5th consecutive quarterly decline for this subsector (when compared to the same quarter, previous year). Every indicator posted a decline from the previous year except Gross Production Tax Collections (GP). Its inflation-adjusted rise of 6 percent can be attributed solely to the natural gas market, which represents 64 percent of all GP tax collections, up from 61 percent last year. Once again, the largest declines from a year ago came from the two leading indicators: Seismic Crew Activity and Intent To Drill (ITD) Permits. Those two indicators fell 27.3 percent and 11.6 percent in the 3rd quarter, and are off even larger amounts from 1987 levels. The fact that exploration and production levels have been weak over the past two years speaks well to the reliability of these two indicators in forecasting future energy demand.

The 3rd quarter began with OPEC overproducing (21+ million barrels a day) and news that OPEC's downstream capacity (refining), both within their organization and outside, had been steadily growing during the decade of the '80s. Prospects for that trend to continue, and probably escalate, were considered "quite high," since oil prices, in inflation-adjusted terms, have actually declined over the past two years. November's daily domestic crude oil production in the U.S. was 7.48 million barrels/day, down 6.8 percent from November 1988, and imports still remain over the 6 million barrel/day level. With worldwide production capacity outstripping even a growing demand for oil, the "value-added" portion of the energy business represents the greatest potential for profits within the industry.

In Oklahoma, the price of Oklahoma Sweet started the quarter at $20.00/barrel and ended the quarter at $19.00/barrel. By the end of November, the price had dipped below $19.00/barrel and was destined to head even lower had Mother Nature not sent a series of Arctic blasts across North America. Thus, during the very season one would expect to see oil prices to rise, just the opposite occurred. While rig counts began their seasonal rise in December, the September-November monthly totals of 136, 136, 135 hardly bode well for subsequent production levels. Not surprisingly, oil and gas extraction employment was down from last year's 3rd quarter as well.

As has been the case for several years now, the "yang" of the energy industry continues to plod onward, despite poor price economics. The natural gas sector continues to generate positive revues from both the industry and analysts alike. In February 1982, severance tax collections for gas exceeded those for oil for the first time since at least the start of the decade; four of the next five months, that same pattern existed. By the end of 1983, tax collections generated from gas were virtually equal to those from oil. By the end of 1984, a new "king" had been crowned (52 percent of all severance tax collections), and that crown has not been relinquished since. Given the market,

technological, and environmental factors of today, the crown should be worn for the remainder of the decade.

While the saga of the "diminishing gas bubble" continues, the consensus view is that widespread shortages, similar to those in the mid-1970s, are not likely this winter. In fact, according to Enron Corp, 650 trillion cubic feet of unproven natural gas reserves exist in the lower 48 states alone. When added to the proven reserves (160 tcf), "we have an extremely large resource base that is recoverable at very reasonable prices," Ken Lay, Enron CEO, recently stated. While it is in Enron's best interests to tout natural gas (they operate the nation's largest natural gas transmission system), others inside and outside the industry are bullish on gas.

The Oklahoma Corporation Commission's energy analyst (Rick Conner) recently reported that, while oil production fell over 9 percent through the first nine months of 1989, natural gas production rose 2.9 percent. At this pace, 1989's natural gas production levels will be exceeded only by 1988's! If Mother Nature keeps the deep freeze on, 1989 may break the record of 2.118 tcf produced just last year. And, remember, this is within a relatively poor price environment. A recent USA Today feature on the "Stocks for the 90s" touted energy as "the play for the 90s." Publicly-held companies in the natural gas production and transmission areas were among several that were noted. With yearly demand expected to continue, fewer alternative fossil fuels, deregulation, environmental concerns with oil, coal, and nuclear, the expected increase in gas-fired electrical plants, and a plentiful supply not "subject to foreign interruption," the energy industry as a whole, the natural gas industry, in particular, is poised for a major comeback in the 1990s.

As we approach the 1990s, Oklahoma, as an energy state, has prepared a statewide Energy Plan and has recognized the potential of natural gas as an economic development leader in the 1990s. From electrical generation to compressed natural gas fuel for vehicles, the natural gas industry is about to embark on a five to eight year growth cycle where exploration and longer-term contracts are the rule, not the exception. While the energy sector of the state's economy is not expected to achieve 1978-82 proportions, it remains a viable and valuable component to a diversified economy.

Manufacturing

After posting a "scant 0.4 percent gain" last quarter, the Manufacturing Subsector declined 4.7 percent in the 3rd quarter. The decline is further highlighted by the fact that this Subsector is also down from the 3rd quarter of 1987 (–1.5 percent). The chief contributor to this weakness is the "weekly hours worked" variable. Since this variable is, within the GBI, negatively correlated with employment, its continued increase over last year's level and 1987's level has provided a negative hit to the index. As reported in this space over the past five years, rises in the weekly hours worked signifies that manufacturers are reluctant to hire more full-time staff. Given the weakened factory conditions at the national level over the past 6-8 months, hiring practices are mirroring manufacturing confidence quite well. Manufacturing employment in Oklahoma, while still positive in quarter-to-quarter comparisons, has weakened dramatically. Total statewide manufacturing employment was up a slight 0.7 percent from 3rd quarter of 1988. The numbers for Oklahoma City and Tulsa were equally unimpressive: +0.9 percent and +0.5 percent, respectively.

The 3rd quarter began with national factory orders declining to an eight month low, profits down almost 5 percent, and capacity utilization still falling. Demand for our manufactured products had weakened, and nearly every statistical measure made that statement conclusively. By the end of the quarter, the Purchasing Manager's Index reported its fifth consecutive monthly decline. To top it all off, U.S. manufacturers after-tax profits was unchanged from a weak 2nd quarter and down from 3rd quarter 88's level. The largest decline occurred in the durable goods sector, a surprise to no one. So, the 3rd quarter was hardly robust at the national level either!

Unfortunately, the 4th quarter hasn't been much better, for the nation or Oklahoma. November's manufacturing employment report showed at 27,000 employment decline from October, but, more disturbingly, factory employment is down almost 165,000 since March! The computer, steel, and auto industries continue to sag, with no apparent end in sight. Oklahoma's manufacturing employment posted a rare year-over-year decline in October, dropping to 164,300 in October. Preliminary November numbers have not yet been released, but the trend in Oklahoma mirrors that seen at the national level.

As we close out 1989, new orders for durable goods, a highly volatile indicator, rose in November (5.1 percent), while orders for machine tools were down 34 percent in the same month and remain weak in December. Auto makers and defense contractors were reporting the largest hits. With $1,000 rebates and 4.8 percent/48 month financing, the auto makers are hoping to push their 1990 models so that extended plant idling can cease. Defense contractors, seeing Soviet Perestroika flourishing and all six of the Warsaw Pact countries turning to non-communistic forms of government, must be concerned about future defense spending levels, especially as it relates to weaponry and new systems. Oklahoma, which ranked 27th in the nation in 1988 in terms of total defense spending, has a lot to lose with the Cold War all but over. The "private" sector that has relied so heavily on DOD $ to employ its work forces will also suffer.

The Oklahoma City GM plant as well as the major Air Force and Army installations around the state are gearing up for an uncertain 1990. GM has already announced a 3,200 payroll cut nationwide, 600 of that in Oklahoma City. The only good manufacturing

news this author can see for the upcoming year is that foreign investment in new plant and equipment continues to grow and that inventories are under control. The latter is especially important in soft or recessionary times, in which, depending upon your perspective, we're definitely mired. Computerization of plants, reducing the differential in the cost of capital between competing nations, and an attitude and performance of quality are going to make or break U.S. manufacturers. With manufacturers only planning a 3.8 percent increase in new capital spending in 1990 (down significantly from the 10.1 percent projection for 1989) and sales projected to increase by only 2 percent, lower interest rates and a new attitude will have to be the primary engines. Oklahoma manufacturers should take heed; 1990 is not likely to be a bullish year.

Construction

The Construction Subsector posted a 2.9 percent improvement in the 3rd quarter, up from the 2nd quarter decline of 4.2 percent. The volatility within this subsector is driven by "one-time hits," and this quarter was no exception. Due to a large nonresidential contract in the Oklahoma City Metro, statewide nonresidential values posted an inflation- and seasonally-adjusted 75 percent increase over last year's levels and a 41 percent increase from 3rd quarter 1987! Residential activity was also up (+17.7 percent) from last year. However, the nonbuilding portion of the subsector, the indicator that has provided the greatest positive push over the last four years, was down 35.4 percent from last year. Nonbuilding contracts, primarily infrastructure improvements, have weakened since the completion of several major roadway projects. Without new bond issues and adequate state funding of scarce federal funds, this indicator may continue to be a drag on an already weak subsector.

The numbers for Oklahoma City were quite healthy, unlike its sister in Tulsa. Residential and nonresidential activity were up from last year and, not surprisingly, so too were the tax collections on the sale of building material. The only posted gain in Tulsa came in the residential side, with all the comparisons to 1987 down, some significantly. I don't mean to beat a dead horse, but for those of you who have read this piece religiously over the years, it's the same story, different year. The most recent data associated with these variables is, from an historical perspective, quite low. When, for example, new construction permit activity once averaged 3,500-4,500 units PER MONTH, and now we don't see that for an entire year, comparisons can become skewed. Consequently, one has to view any singular quarterly increase with suspicion. As with any data, one quarter does not a trend make. While the overall GBI benefited from the growth, don't look for this subsector to be a consistent contributor future GBI advances.

In the 3rd quarter, we began receiving our first concrete signs of a real estate slump in New England. By the end of the 4th quarter, it was unmistakable. As an example, Moody's Investors Services Inc. cut its debt rating for One Bank Corp., Maine's largest bank-holding company, in July, due to a large rise in nonperforming assets. By December, the State of Maine was reporting a shortfall and "revenue enhancement" measures are almost a certainty. What happened in our region and in Arizona is now occurring in New England and, to a lesser degree, in California. As one real estate analyst from Massachusetts recently remarked: "Certainly there was not a lot of sober thought given to some of these projects." Bankers, thrifters, real estate economists from the South Central part of this country can certainly relate to that explanation.

Is it going to improve? Yes! When? Sometime! The glut is here and has to be worked off, not just in Oklahoma, but nationwide. Whether its the Commerce Department or F.W. Dodge, the 3rd quarter was not a very positive period, despite declining interest rates. On the residential front, regional disparities, which were more than double ($150,000 median value house in the Northeast vs. $70,000 in the Midwest), are beginning to flatten. Unfortunately, the decline in the disparities is more a function of rapid cooling in the Northeast than rapid heating in the Midwest. In reality, the rate of decline is less dramatic in the Midwest than in the Northeast. But equilibrium is virtually unreachable due to both economic and market reasons. While residential foreclosures are abating somewhat in Oklahoma and Texas, residential foreclosures are at "all-time, intergalactic highs" in Phoenix. That space trip is spreading to the coasts. When employment begins to weaken, especially in the high-waged manufacturing sector of the economy, mortgage delinquencies move countercyclically to new mortgage originations. The concept of Supply-Demand Imbalance, once thought to be found only in the "energy-patch," is becoming contagious.

The news is mixed for Oklahoma. Home sales remain weak in Oklahoma City but stronger in Tulsa. Sales of apartment complexes are up substantially from 1988, but, then remember, everything is relative. While office vacancy rates remain in the 27-30 percent range, Oklahoma City Metro's shopping center vacancy rate fell to a two year low and the sales prices of executive-size homes (2,500-3,500 sq. ft.) actually rose (+1.6 percent). The bottom line, however, is still negative. We continue to permit new construction in markets that are grossly overbuilt.

The Resolution Trust Corporation (RTC) recently announced that "more than 1,000 properties across the state will be aggressively marketed" in 1990. And that's only the property the RTC has, which is post-January 1, 1989 property! Don't forget about the FDIC and all of its "thrift pickups" from 1987 and 1988. The FDIC, in addition to RTC, also manages the FSLIC Resolution Fund, as well as properties, both residential and commercial, under its own portfolio. The "1,000 properties" is just the tip of the iceberg; if that's true, overall market conditions cannot

LOGICALLY expect to stabilize or improve before 1995. While there may be a few geographic or real estate markets that do, those will be few, far between, and short-lived. "Purchase and refurbish" should be Oklahoma's real estate policy of the 1990s. "Razing" is not a bad backup. "Generating demand" (job creation) must become the economic survival policy of all Oklahomans. Dealing only with one side of the "Supply/Demand Imbalance" equation will prove to be ineffective. How the government disposes of their repossessed properties will play a big role in how soon the markets recover. In other words, 1995 might even be optimistic!

Consumer Demand

The Consumer Demand Subsector posted a rare 0.7 percent improvement in the 3rd quarter. The three most prominent components — sales tax, general merchandise, and apparel tax collections — all posted increases from last year's 3rd quarter. Tulsa was a contributor to those increases, while Oklahoma City remained (s) weak in the 3rd quarter. The data, adjusted for seasonality, inflation, and tax increases, showed less than 2 percent gains across the board. The gains can be attributed to a number of factors. Several major statewide events were held in the 3rd quarter, including Tulsa's National Conference of State Legislatures (August) and the nine-day U.S. Olympic Festival (July) held primarily within the Oklahoma City Metro. Those events, along with an increase in the number of people working, kept the numbers from running negative.

After peaking out at 5.2 percent in the 2nd quarter, the national CPI ran at a 4.7 percent clip in the 3rd quarter, the lowest quarterly level in 1989. Through November, the 4th quarter level is 4.6 percent, so, while we haven't "whipped inflation" yet, we are slowly moving in the right direction. That is good news for the consumer and, therefore, for the retailing community. The Conference Board's Consumer Confidence Survey remained at a high level throughout the 3rd quarter and, though dipping just slightly in December, signals a "reasonably good" holiday season. As Fabian Linden, Executive Director of the CB's Consumer Research Center, pointed out: "The prevailing economic climate for consumers continues to be comfortable — low unemployment, moderate inflation, and declining interest rates. We still don't see any signs of recession in our consumer-confidence survey."

In Oklahoma, the picture is not quite that strong. Through the first nine months of the year, total retail trade in the state and both metros remain down (-2.1 in the state and -2.2 and -1.4 in Oklahoma City and Tulsa). However, excluding auto and lumber sales, retail trade is up 5 percent and 4.5 percent respectively. Most of the decline has occurred in the auto category, and don't look for that to improve in the 4th quarter. While the biggest jump in retail sales occurred nationally in November (+0.8 percent), similar results are showing up in Oklahoma. October's sales tax collections, adjusting for local tax increases, were up in virtually every community within the Oklahoma City metro, while Tulsa posted a 9.9 percent increase from last year. Whether those trends carry themselves into the Christmas season, only time will tell.

As the Christmas season draws to a close, the reports from area merchants and Telecheck Southwest are only modestly optimistic. Preliminary estimates from TeleCheck show that retailers in Oklahoma City showed about a 3 percent increase from last year, while Tulsa's sales fell 1 percent. Since they are preliminary and represent only a sample, additional data should be used before an accurate analysis for either market can be made. As CEMR recently reported in its Business Bulletin, the real weakness within the retail sales area is in durable goods. In fact, the non-durable area has posted five consecutive quarterly increases (when compared to the previous year). That is a good sign as we conclude the holiday season, because the growth rates since the 3rd quarter of 1988 have been positive in both number and slope.

As the State's Comptroller, Doug Enevoldsen, recently remarked: "Oklahoma's economy is no longer a recessionary economy. The Oklahoma economy will virtually parallel the health of the national economy in FY 1991, although there may be some variances." This from the man who tracks the state's revenue patterns and continues to see year-over-year growth, albeit slight. Revenue from Income and Sales taxes, representing over 70 percent of the revenue base, continue to grow and signify that, like his/her national counterpart, the Oklahoma consumer is still confident. If interest rates continue their decline (as I forecast they will) and the rebates and incentive packages spread, we will also derive a large benefit from auto sales this year. 4.8 percent over 48 months, including many of the dealers' most popular cars, is one way to ensure a stronger than forecasted 1990.

Agriculture

The Agriculture Subsector posted yet another quarterly gain, although it has begun to show some weakness as of late. Both beef and wheat prices posted seasonally- and inflation-adjusted increases from the 3rd quarters of 1987 and 1988. Both were up around 3.4 percent from last year and wheat prices were up almost 51 percent from two years ago. But, prices, especially for wheat, have begun to weaken, as wheat prices fell 2.9 percent from last quarter. Without adjustments for inflation, the numbers are essentially flat. While the 10th Federal Reserve District showed that credit conditions "strengthened modestly" in the region, gains in values remained the smallest while interest rates the highest in Oklahoma.

After a very wet and cool summer, the USDA's Agricultural Statistical Board forecasted overall increases in crop production, especially in grain sorghum and peanut yields. That was in September. After that favorable summer, Oklahoma has been cursed with virtually no rainfall, high winds, and extremely cold temperature of late.

While the annual rainfall total is up from last year's levels, we unfortunately received most of it in a couple of months. Consequently, reports of "excellent growing conditions" have turned to "not a pretty picture at this point." Ah, Mother Nature! In late summer, early fall, there was talk of more acres being planted and higher yields per acre, resulting in a very good 1990 crop. As we enter 1990, things are far less certain. The only real positive today is that grain stocks (wheat in particular) are down, and that always has a positive influence on prices.

Winter wheat is Oklahoma's second most valuable farm commodity (next to beef) and Oklahoma is the second leading producer of that commodity (next to Kansas). As the globalization of the market place continues to unfold, winter wheat plays an important part in Oklahoma's economic future because it is a critical export commodity. News from both the Soviet Union and China that their production levels are down bodes well for the U.S. and Oklahoma, in particular. With their need for imports rising, we must be in a position to satisfy that demand, or others in the market can capture that niche. And it is a sizeable niche. Those two countries are expected to import almost 60 million metric tons of wheat in 1989-1990, and the U.S. is expected to capture just over 50 percent of that demand. Mother Nature will, once again, play an instrumental role in how much wheat Oklahoma will have to export.

News within the beef industry has been relatively quiet. Like the grain farmer, the beef farmer is looking more and more toward exports. Like many of the grains, herd size is low and, unless ranchers increase their herd size, prices for beef will remain strong. A small herd size, lower feed prices, and increased foreign demand should cause herd size to rise in the early 1990s. The American Meat Institute has reported two other favorable findings with respect to meat: (1) after years of decline, red meat consumption has stabilized: and (2) the export value of meat and meat products surpassed the value of imports for the first time ever in 1988. With the Mexican Government lifting its restrictions on some live cattle and all meat in 1989, that market becomes a prime target for Oklahoma and Texas ranchers. With the recent events in Eastern Europe, at least six more countries (Warsaw Pact) have opened their markets to exporters, albeit some more than others. The export potential is strong, but it will remain "potential" without the commodity and proper marketing and negotiations.

Remember, the size of one's economic pie cannot expand without the exportation of goods and services and the importation of new capital. With prospects in the manufacturing area dimming, agriculture can play a significant role in this state's quest for economic growth. Before we get lost in the prospect of higher prices for raw commodities, let us not forget that catfish farming, peanut processing plants, and other value-added or import substituting agricultural endeavors must flourish in the 1990s if agriculture is going to play a significant role in this economy. Growing a commodity is one thing; adding value to it is another. Virtually any country, given the proper climatic conditions, can do the former. It takes planning, foresight, and capital to achieve the latter. That is part of the diversification process.

General

The General Subsector posted a 1.6 percent increase over last year's level and is up almost 15 percent from 1987. The 3rd quarter increase represents this subsector's fourth in a row, although none have been higher than 2.1 percent. Despite a slight slippage in Wage and Salary Employment (-0.03 percent) and Oklahoma City's Help Wanted Index (-0.7), all the employment indicators remained positive. Unemployment rates have declined substantially, and that has occurred while both the labor force and total employment have also posted increases. I have stated many times before that low unemployment rates, in and of themselves, are not good indicators of economic health. However, when combined with growing employment and labor force bases, declining unemployment-rates are significant. Other major contributors to this subsector's quarterly increase included real personal income (+1.5 percent) and unemployment insurance claims (-6.2).

As the 3rd quarter began, one of the most pressing questions asked by both economists and politicians alike was: Why is the Fed trying to kill the expansion? Most have felt that Greenspan & Co. have spent too much effort trying to reduce inflation to zero, at the expense of the economy as a whole. The dollar continued to rise and the growth in the money supplied slowed, even with quarterly inflation rates declining. The stock market sat at 2450 and Fed Fund rates were almost at 10 percent. The economy was sluggish and forecasts for the 2nd half of the year were for more of the same. By the end of the quarter, the Dow was up 10 percent to 2690, the U.S. dollar had dropped 3 percent, and the Bond Market Index and interest rates stayed about the same. To top all that off, the GNP number was revised UPWARD to 3 percent. Why should the Fed loosen money if the economy is running at 3 percent?

The answer, no doubt, will show up in the 4th quarter, when many are looking at less than 1 percent growth in GNP and a number of others are calling for a negative GNP rate. Unfortunately, we're not going to know the "final" GNP number for the 4th quarter and the year as a whole until March. While I think the rate will lessen, I'm not prepared to call for a negative rate. As Eric Heinemann of Heinemann Economics recently stated: "There is little doubt that interest rates will decline substantially in the first half of 1990. Alan Greenspan has no wish to become the scapegoat for a severe economic retraction." I suspect he doesn't want to be blamed for even a minor one!

December marked the beginning of the eight consecutive year of U.S. economic growth. The National

Association of Business Economists' most recent poll revealed that we can expect at least another three years of growth. As a member of that organization, I both contribute to and agree with their (our) findings. The Business Council, composed of 100 CEOs of the country's large corporations, have forecasted a "significant U.S. economic slowdown for 1990," but growth will rebound in 1991, giving the country "an unprecedented nine consecutive years without a recession." The Administration, to no one's surprise, is also forecasting growth in 1990 and beyond, with 2.6 percent growth forecasted for next year. Despite all the threats of a recession, those that have forecasted one for this year are absolutely wrong (technically, it takes two consecutive quarters of decline to constitute a recession), and those that are forecasting one for next year are in the minority. You'll note that I didn't say they, too, were wrong . . . yet!

The bases for averting a recession next year revolves around several factors. First, lower interest rates, brought about by Fed action and subsequent lowering of the prime by banks. Second, lower inflation is expected, although the recent hard freeze will put further upward pressure on food prices. However, wage contracts and energy prices are expected to post only modest gains next year. Third, the dollar should decline, which will continue to favor the export side of the economy. There appears to be a strong correlation between the recent rise in the dollar, decline in manufacturing employment, and a slight worsening in our trade deficit. Finally, business investment in new plant and equipment must expand, and at a more rapid rate than is currently being forecasted (+4.9 percent). The low dollar is not a permanent feature of the world economy; capital investment is absolutely essential to improve efficiency, quality, and productivity. If these factors occur in 1990, and the consumer continues to do what he/she has told us they will, a 2.6 percent growth rate for 1990 may not be that farfetched.

Financial

The Financial Subsector continues to its year-over-year decline, although its rate of decline is the lowest in almost two years. The subsector fell 5.8 percent from last year, due to continued negative numbers emanating from the Saving and Loan industry. The net income of Oklahoma's two largest publicly-traded banks posted a sizeable improvement over last year's level, but not sizeable enough to offset the thrift problems. All three thrift variables posted declines: loan closings down 38 percent, loan commitments down 65 percent, and total deposits down 20.4 percent. All the numbers have been seasonally- and inflation-adjusted.

While the individual indicators for the thrift industry continue to run negative, the 3rd quarter report on Oklahoma's Saving and Loans showed some improvement. However, the improvement is in the form of a "smaller loss" than last year's 3rd quarter! Nationally, the thrift industry lost $3.8 billion in the 3rd quarter, with $26.3 million of that coming from Oklahoma thrifts.That is an improvement from the $33.3 million loss posted in the 3rd quarter of 1988. The problems are not geographically restricted to just the energy patch either. Texas had the biggest loss of any state ($1 billion), with Arizona ($443 million), California ($426 million), and Pennsylvania ($322 million) following right behind. To put Oklahoma's "improvement" in even better perspective, every contiguous state to Oklahoma posted a larger loss than Oklahoma, ranging from $42.3 million in Missouri up to $245 million in Arkansas. Colorado, Kansas, and New Mexico fell somewhere in between.

President Bush's "Rescue Plan," which went into effect August 9th of this year, originally appropriated $50 billion through 1991. But as one financial institutions analyst recently remarked: "We still have as much as $20 billion in losses out there that haven't come to the surface. It's like water torture. It's going to continue quarter, after quarter, after quarter." The experts continue to call for the closure of still-open insolvent thrifts and the "quick disposal of their assets." Obviously, tasks that are easier said than done. What the "quick disposal" policy tends to do is severely damage local real estate markets, which causes Savings and Loans that are either borderline or healthy to mark down their asset base. This in turn puts them in jeopardy of not being able to make the new capital requirements, therefore, putting them under either closer FDIC scrutiny or outright control.

As the 3rd quarter began and the "rescue plan" was adopted, the Administration felt that this plan and its $166 billion budget would stop the bleeding and, ultimately, resolve the crisis. By the middle of December, President Bush was quoted as saying: "I am now told that that might not be enough." This author, for one, is not surprised. The $400-500 billion estimates made over the past year in this space are becoming more and more believable. The real estate slowdowns in New England and California are not likely to help this situation at all!

While the banking environment is, relative to the thrift situation, a healthy one, depositors beware. The banks are faced with Third World debt, leveraged-buyout loans, junk bond failures, and, yes, even real estate losses. While Oklahoma bank failures have been abating since their annual high of 31 in 1987 (12 in 1989), business, industrial, and commercial foreclosures are playing a major role in the banking industry's inability to recover more rapidly. According to Mckinsey and Co., real estate loans comprised 23 percent of bank portfolios in 1974; they comprise 37 percent today. Loans to commercial properties, "the most worrisome area," represent 18 percent of total portfolios. Given the plethora of space that has been built during the decade of the '80s and the slackening of demand as we approach the '90s, more nonperforming or underperforming loans are expected. After all, high vacancy rates produce less than adequate cash flows. In the high vacancy rate environment of the

past 5-7 years, those "less than adequate cash flows" have a way of accumulating." Like interest payments on the ever-burgeoning national debt, the problem only worsens.

As stated previously, banks have performed more profitably than Savings and Loans, at least in this state. While the nation's commercial banks lost $744 million in the 3rd quarter (the first loss in over 2 years), the 443 Oklahoma banks had a net income of $23 million. That represented the fourth quarterly gain in a row. The last losing quarter was the 3rd quarter of 1988, when a $27 million loss occurred. The news is mixed, however. While our banks continue to see the amount of nonperforming assets decline, so, too, do their loans and deposits. It seems like a vicious cycle downward, despite the quarterly profitability reports. The problems bankers, thrifters, and their shareholders face today is a result of what happened "yesterday." As Edward Kane, Ohio State University economist, summed it up: "When you get desperate people doing desperate things, on average they tend to lose money." And not just theirs!

Conclusion

I closed last quarter's report with the statement: "slow growth is better than no growth." Given the direction of the national economy, I might want to close this quarter's report with "no growth is better than negative growth." But, I don't like my options for the next quarter if I use that! Seriously, growth, as forecasted over two years ago, has been slow. Quarterly growth rates from the General Business Index as well as OSU's Quarterly Econometric Model demonstrate that finding quite conclusively. The employment data for Oklahoma and its two major metropolitan areas paints a similar picture. My "statuitive" forecast (that's a statistically- and intuitively-based forecast!) is for 2.2 percent growth in the GBI, annual 1989 to annual 1990. OSU's GSP forecast calls for 1.5 percent growth from 4th quarter 1989 to 4th quarter 1990. If I'm a little high and they're a little low, then we're a whole lot right. And no matter how you slice it, the slow growth pattern will continue.

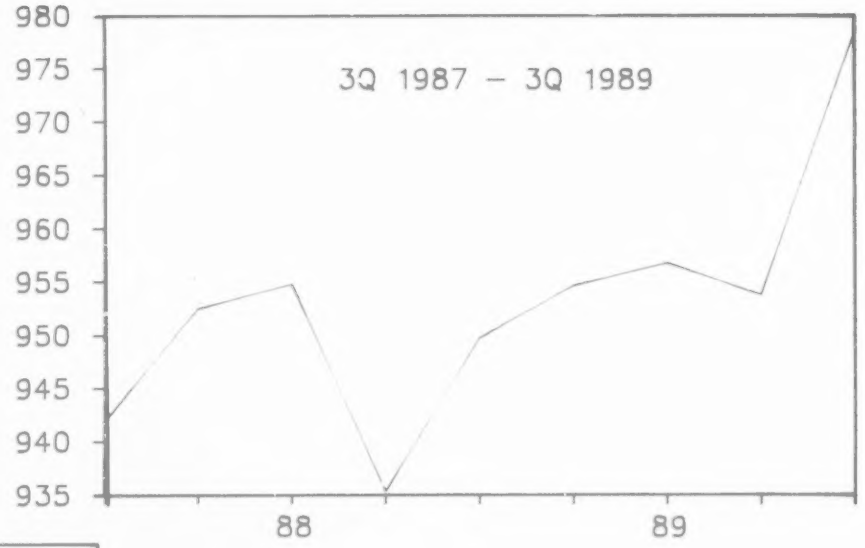
Oklahoma remains very dependent upon what goes on nationally and internationally. The dollar rises, the manufacturing sector turns down nationally, and we weaken as well. For example, in November 1988, statewide manufacturing employment was 165,200, 6,000 ahead of November 1987. In November of 1989, the preliminary manufacturing employment number is 165,200, meaning no change at all. No change is not positive, unless you compare it to the nation's manufacturing base, which has lost almost 150,000 factory jobs since March! The eventual impact on Oklahoma hasn't yet been felt, but the tremors of weakness are unmistakable.

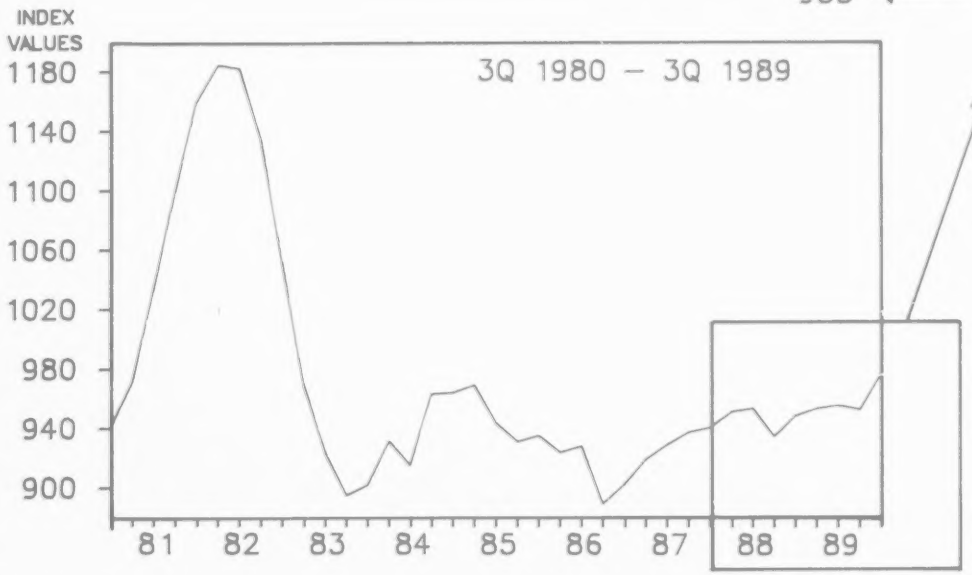
The 4th quarter GBI will, based upon preliminary data, be weaker than the 3rd quarter. Whether the impacts of lower interest rates, looser money, and continued growth among key international economies can offset the expected defense cutbacks, financial and real estate losses, and 90 day supply levels among domestic auto dealers is uncertain. However, two major factors that have fueled past recessions are NOT prevalent in today's economy: inflation and excess inventories (with the exception of autos). With inflation moving toward the 4 percent level, inventory levels at less than 1.6 months (backlog), and a looser monetary policy almost a certainty, an "imminent recession" is unlikely.

Oklahoma's employment and personal income numbers continue to slope positively and $50 billion economies do not turn precipitously upward or downward unless dominated by one or two industries. Oklahoma's economy is far more diversified than it was 5-10 years ago, and while energy, manufacturing and government numbers remain weak and construction continues to decline, the Services industry keeps right on truckin'. Expect the same trends in 1990, unless the U.S. dollar turns dramatically downward. I'm betting against that and betting, instead, on "more slow growth."

Craig Knutson is Staff Economist for Southwestern Bell Telephone Company.

OKLAHOMA GENERAL BUSINESS INDEX





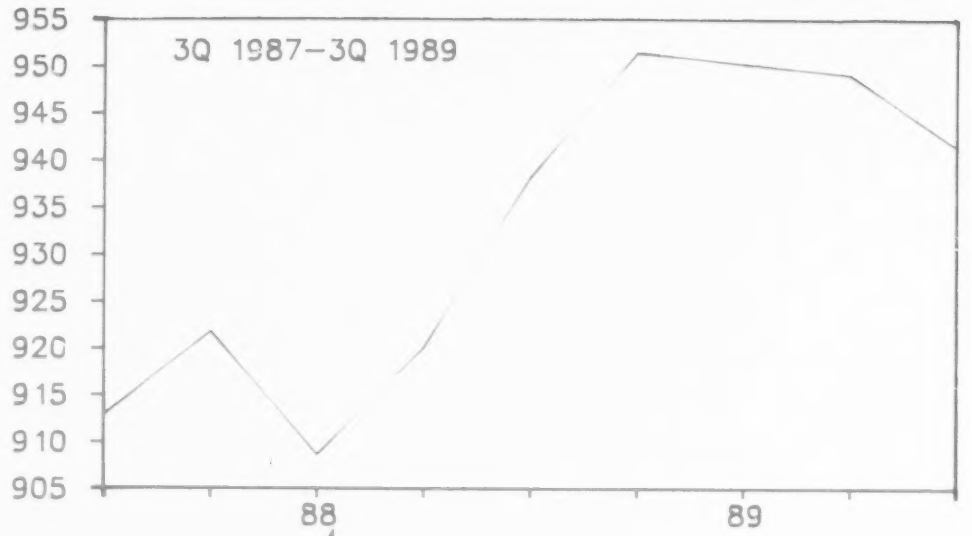
3Q 1989 AVERAGE VALUE	2Q 1989 AVERAGE VALUE	% CHANGE [1]	3Q 1988 AVERAGE VALUE	% CHANGE [1]	3Q 1987 AVERAGE VALUE	% CHANGE [1]
978.9	953.9	2.6	949.9	3.1	941.9	3.9

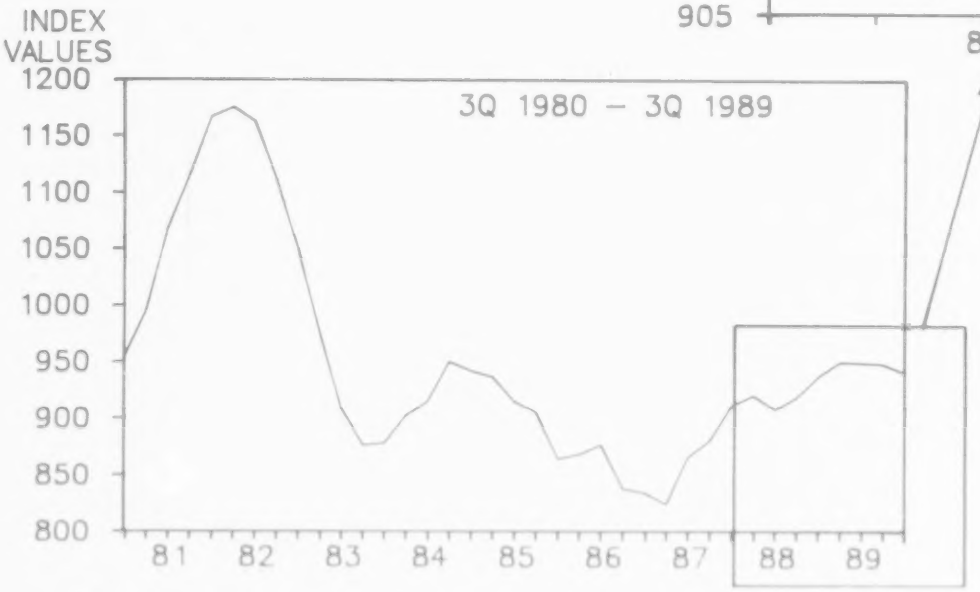
[1] COMPARED TO CURRENT QUARTER

- 1980 – 1989 GBI AVERAGE = 973.8
- 3rd Q 1987 – 3rd Q 1989 GBI AVERAGE = 953.2
- Unemployment taxes for businesses are expected to be cut by at least 10% in 1990 due to the highest balance ever in the Unemployment Insurance Trust Fund
- Oklahoma has been recognized as a "hotbed for inventors," currently ranking 23% above the national average in patents per capita.

SOURCE: SWBT ECONOMIC DEVELOPMENT DISTRICT/CEMR

OKLAHOMA CITY GENERAL BUSINESS INDEX





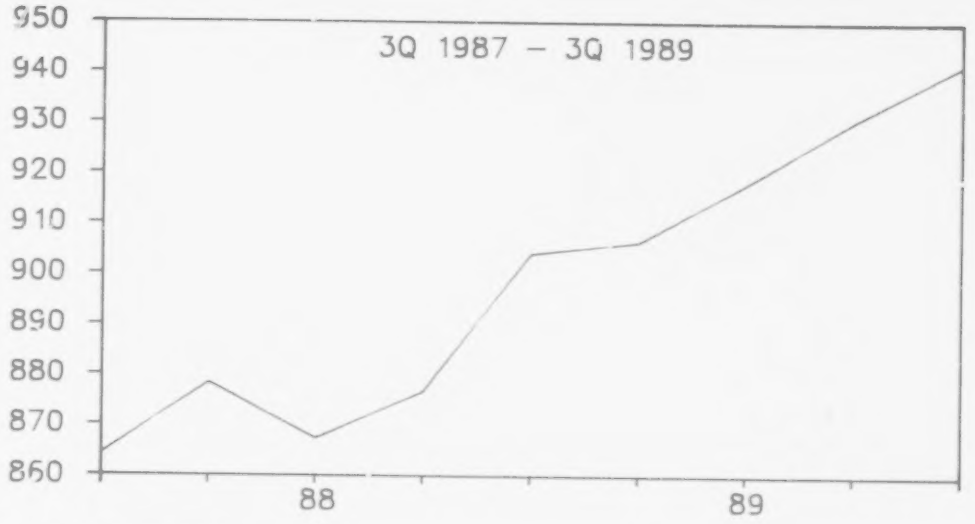
3Q 1989 AVERAGE VALUE	2Q 1989 AVERAGE VALUE	% CHANGE [1]	3Q 1988 AVERAGE VALUE	% CHANGE [1]	3Q 1987 AVERAGE VALUE	% CHANGE [1]
941.4	949.1	-.8	938.3	.3	913	3.1

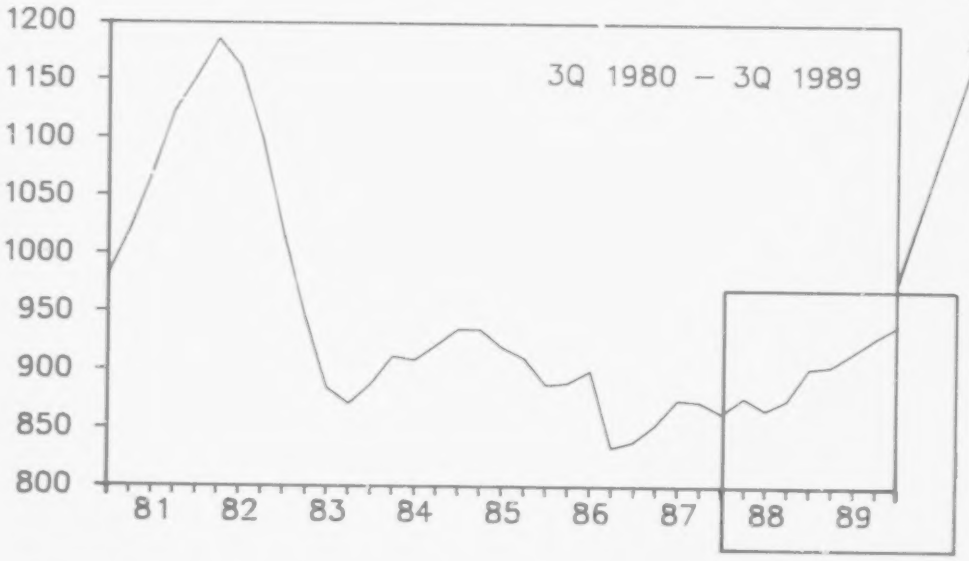
[1] COMPARED TO CURRENT QUARTER

- 1980 – 1989 GBI AVERAGE = 950.5
- 3rd Q 1987 – 3rd Q 1989 GBI AVERAGE = 932.7
- The IRS will open their Automated Collection Services branch in January 1990; when fully operational, the branch will employ 130.
- The OKC Metropolitan area ranked 49th out of 333 cities in terms of overall "livability," according to the 1989 Places Rated Almanac.

SOURCE: SWBT ECONOMIC DEVELOPMENT DISTRICT/CEMR

TULSA GENERAL BUSINESS INDEX





3Q 1989 AVERAGE VALUE	2Q 1989 AVERAGE VALUE	% CHANGE [1]	3Q 1988 AVERAGE VALUE	% CHANGE [1]	3Q 1987 AVERAGE VALUE	% CHANGE [1]
941.5	930.5	1.2	904.2	4.1	864.3	8.9

[1] COMPARED TO CURRENT QUARTER

- 1980 -- 1989 GBI AVERAGE = 943.1
- 3rd Q 1987 – 3rd Q 1989 GBI AVERAGE = 898.6
- With nine air freight companies operating at Tulsa International Airport and a doubling in the amount of air freight flown through Tulsa since 1980, new facilities are being planned to handle current and expected demand.
- Tulsa's convention business continues to expand, with over 225,000 visitors in 1989 alone. That is a 43% increase over just three years ago.

SOURCE: SWBT ECONOMIC DEVELOPMENT DISTRICT/CEMR

Oklahoma Banking 1989

NEIL J. DIKEMAN, JR.

DURING 1989, THE BANKING industry in Oklahoma continued the improvement noted in 1988. An examination of the banking industry in two other West South Central States (i.e., Louisiana and Texas) revealed that the industry in these states also experienced similar improvement. For example, bank closings reached epidemic levels in these between 1985 and 1988 as the total number of banks dropped from 2,897 in the earlier year to 2,161 by the end of 1988. In addition to the decline in banking offices, the market for loans also showed significant losses as did owners' equity and a number of other industry indicators. However, on a more optimistic note, 1989 banking statistics for the area indicated that improvements in the health of the industry noted in 1988 continued during 1989. In an effort to determine how well banks in Oklahoma performed in 1989 relative to the rates of recovery experienced by banks in the remaining two states, changes in various performance and operating indicators of Oklahoma banks between 1988 and 1989 were compared with those of the banks in the remaining two states. In order to eliminate the variations in the populations and numbers of banks which exist among the three states, all comparisons included in the article are based on the "average" bank in each state. In addition to comparisons of changes in key indicators of average banks in the study area, comparisons of changes in the key indicators of the average Oklahoma bank were made with those of the average "high performing" Oklahoma bank. These comparisons are discussed in turn in the remainder of this article.

Comparative Bank Operations Ratios

The performance of the average bank operation in Oklahoma during 1989 continued the upward trend begun in 1988 while the performances of average banks in Louisiana and Texas generally exhibited less significant signs of improvement. Much of the growth rate in Oklahoma during the past two years is possible due to its proportionately more severe losses between 1982 and 1987 than was the case in the other states studied which resulted in a lower base from which the Oklahoma growth rate was measured.

Some of the more significant signs of continued improvement were the growth in average owners' equity in Oklahoma banks that reached 8.3 percent of total liabilities which was the highest among the three states studied. Also, the investment in securities by the average Oklahoma bank rose to 34.8 percent of total assets which was also the highest among the banks in the study area. While on the one hand, the increases in these performance indicators reflects a greater security and safety in a bank, it also suggests either that the loan market for the bank has become increasingly weaker or that bank management has less confidence in the loan applications it receives than it has had in past years. Regardless of the reasons, however, the rise in security investments made by the average Oklahoma bank between 1988 and 1989 was accompanied by a decrease in the proportion of funds loaned during 1988 to 46.1 percent of assets which was the lowest of the three states. On the brighter side, the loan to deposit ratio of the average Oklahoma bank rose from 53.1 percent in 1988 to 54.2 percent in 1989. Despite this increase, however, this ratio remained well below that of either Louisiana or Texas.

Total deposits in average banks in both Oklahoma and Louisiana rose between 1988 and 1989 while those in Texas declined which suggests that the confidence of patrons of banks in Oklahoma and Louisiana is increasing while Texas patrons still view their

banks with less optimism.

The net results of these changes in the condition of the average bank noted thus far is that the net income of the Oklahoma bank represented 0.7 percent of average assets in 1989 compared with 0.4 percent in 1988. The ratio of net income to assets in the average Arkansas bank meanwhile rose from 0.2 in 1988 to 0.4 in 1989 and in Texas, the ratio rose from –0.6 percent to –0.2 percent. Details of these and other operating measures appear in Table 1.

Comparative Average Bank Performance Ratios

As was the case with the operations aspects of the average Oklahoma bank, its performance indicators in almost every case tended to compare very favorably with those of the two comparable states. In 1989, the average Oklahoma bank experienced a net income return on equity of 6.8 percent. This exceeded that of the average Texas bank which was 6.4 percent below owners' equity while that of Louisiana was 3.6 percent. Roughly, the same pattern was followed by the comparisons of net return on assets where the ratio for Oklahoma showed a return of 0.6 percent whereas the average bank in Louisiana was 0.4 and the average bank in Texas reflected a negative return of 0.2 percent.

The average Oklahoma bank also showed up well when comparing the average yield of net loans. In this case, the yield of net loans held by Oklahoma banks of 12.3 percent exceeded both the 11.9 percent yield experienced by the average Louisiana bank as well as the 12.1 percent yield experienced by the average bank in Texas. Insofar as ratio of equity to total assets is concerned, equity of the average bank in Oklahoma was 9.5 percent of total assets while equity levels in Texas and Louisiana banks were 8.3 percent and 9.1 percent respectively.

In other performance indicators, the average Oklahoma bank fared less impressively than those discussed thus far as it registered a net equity gain during 1989 of 1.9 percent which was better only than the 0.8 percent equity loss which was sustained by the average bank operation in Texas. On the other hand, very little differences were noted in the area of earning asset yield. As in the former indicator, both Louisiana and Texas banks registered yields of 10.8 percent while the average Oklahoma banking registered the lowest yield of 10.7 percent. Net loan yields ranged from 11.9 percent (the average Louisiana bank) to 12.3 percent (the average Oklahoma bank) with the yield of the average Texas bank being 12.1 percent. The weakest areas of performance of the average Oklahoma bank were the rates of asset growth (0.3 percent versus 0.8 percent for Texas).

TABLE 1

Average Bank Operating Ratios
Louisiana, Oklahoma and Texas
June 1988 and June 1989

	1988			1989		
	Louisiana	Oklahoma	Texas	Louisiana	Oklahoma	Texas
Banks per 100,000 Population	5.6	14.0	8.7	5.5	13.4	8.2
Number of Banks						
Number	247	456	1,458	238	434	1,391
Rank	3	2	1	3	2	1
Owners' Equity						
Percent of Liabilities	7.3	8.3	6.9	7.9	8.3	7.1
Rank	2	1	3	2	1	3
Total Deposits						
Percent of Liabilities	90.6	90.2	91.2	89.7	89.8	91.1
Rank	2	3	1	3	2	1
Total Securities						
Percent of Assets	29.4	33.5	26.2	30.5	34.8	28.2
Rank	2	1	3	2	1	3
Net Loans						
Percent of Assets	49.5	47.0	47.6	50.5	46.1	46.7
Rank	1	3	2	1	3	2
Net Loans						
Percent of Deposits	62.5	53.1	60.6	63.4	54.2	57.5
Rank	1	3	2	1	3	2
Net Income						
Percent of Assets	0.2	0.4	-0.6	0.4	0.7	-0.2
Rank	2	1	3	2	1	3
Net Interest Margin						
Percent of Assets	3.8	4.1	3.7	4.4	4.2	3.9
Rank	2	1	3	1	2	3

The average Louisiana bank experienced an asset growth rate of –0.3 percent and a deposit growth rate of –0.7 percent, both of which were well below the rates experienced by the average bank doing business in Oklahoma. Details of these data appear in Table 2.

In summary, the average Oklahoma bank exhibited excellent strength, compared with the remaining two states in owners' equity both as this indicator relates to liabilities and to assets. Moveover, its portfolio appears to be safer in that securities comprise a bigger share of its assets than in banks in either Texas or Louisiana. Further, its net income to assets ratio is above those of average banks in the two remaining states and its net interest margin is second only to that experienced by the average bank in Louisiana. However, the continued lag in the loan to deposit ratio of the average Oklahoma bank tends to constrain its earning capabilities and its apparent service to its market area.

Performance-wise, the average Oklahoma bank sustained a larger rate of return on owners' equity and on assets than did the average bank in the two remaining states and also had a larger net profit margin. It performed reasonably well in terms of asset yield and the ratio of equity to assets and exhibited only moderate strength in earning assets and net loan yields but was well below the experiences of the average banks in Texas insofar as asset and deposit growth rates were concerned. The lag in the rate of deposit growth for the average Oklahoma bank can be attributed in part to the relatively slow growth in personal income—and its effect on the loan market—which was prevailed in the State during the past seven years to the increased diversion of funds by bank customers to nonbank investments.

TABLE 2

Average Bank Performance Ratios
Louisiana, Oklahoma and Texas
June 1989

	Louisiana	Oklahoma	Texas
Percent Return[a] on Equity	3.6	6.8	-6.4
Rank	2	1	3
Net Profit Margin	4.1	6.4	-2.4
Rank	2	1	3
Percent Return on Assets	0.4	0.6	-0.2
Rank	2	1	3
Percent Asset Yield	10.5	10.5	10.5
Rank	1	1	1
Percent Equity to Assets	9.1	9.5	8.3
Rank	2	1	3
Percent Equity Formation Rate	3.2	1.9	-0.8
Rank	1	2	3
Percent Earning Asset Yield	10.8	10.7	10.8
Rank	1	2	1
Percent Net Loan Yield	11.9	12.3	12.1
Rank	3	1	2
Percent Asset Growth	-0.3	0.3	0.8
Rank	3	2	1
Percent Deposit Growth	-0.7	0.1	1.1
Rank	3	2	1

[a]Net income return

TABLE 3

Average Bank Performance Ratios
All Oklahoma Banks versus High Performance Oklahoma Banks
June 1989

Performance Ratio	All Oklahoma Banks	High Performance[a] Oklahoma Banks
Percent Return on Equity	6.8	26.2
Percent Return on Assets	0.7	1.8
Percent Asset Yield	10.5	11.0
Percent Equity to Assets	9.5	8.6
Percent Equity Formation Rate	1.9	8.4
Percent Earning Asset Yield	10.7	11.1
Percent Net Loan Yield	12.2	12.6
Percent Asset Growth	0.3	1.5
Percent Deposit Growth	0.1	1.0
Net Profit Margin	6.5	15.8

[a]High Performance Banks are defined as the upper 20 percentile of banks based on the ratio of returns on equity ratios.

All Oklahoma Banks versus High Performance Banks

For the purpose of this study, high performance banks are the upper 20 percent of the banks in Oklahoma based on return on equity. In 1989, there were 10 banks which fell in this category of which only one was located in one of the State's four Metropolitan Statistical Areas. This suggests that, for the most part, the high performing banks are located in smaller communities throughout the State and thus have lower owners' equity levels which allows for higher *rates* of increase to occur. However, despite the fact that the average high performing bank is generally smaller than the average of all banks, its performance ratios are impressive. For example, where the

average Oklahoma bank experienced a return on equity in 1988 of 6.8 percent, the average high performing bank showed a 26 percent return. In addition, the average Oklahoma bank experienced a 1.9 percent gain in equity formation whereas the average high performing bank increased equity by 8.5 percent. The average high performing bank also showed significantly greater growth rates in assets and deposits and, at the bottom line, had a net profit margin of 15.8 percent which was more than double the rate of the average Oklahoma Bank. Other rate and ratio comparisons are shown in Table 3.

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Money Magazine Errs

An article appearing in the January issue of *Money* Magazine which was focused on state and local tax burdens has received considerable attention by local press and electronic media. The article characterized certain states such as Alabama, Florida and New Hampshire as "tax havens" in contrast to other states such as New York and Hawaii as "tax hells." The feature of the article which received the most publicity was a table which ranked the states in terms of the magazine's definition of the tax burden of a typical family of four. One of the more notable aspects of this table (to an Oklahoman at least) was the fact that the tax burden of an Oklahoma family was computed to be above that of a similar family in Texas.

Because of the interest this article engendered among the states, State Policy Research, Incorporated, an organization which specializes in the analysis of policy questions such as taxation, investigated the methodology, assumptions and tax components upon which these rankings were based.[1] Their findings were first that the computations on which this table was based included only the sales taxes on food, clothing and the gasoline tax (which, in Oklahoma is an excise tax) but omitted the property tax as a part of the tax burden. This omission covers a significant element in the tax structure and in the cost of living. In addition, the *Money* article also assumed an average annual income for the family of $61,372 whereas, in Oklahoma, this average would have been more likely between $30 and $35 thousand. This difference in family income alone would have caused a significant decrease in the tax burden computed for Oklahoma residents. However, by merely including property taxes in the tax burden and without adjusting other taxes for income differences, the ranking of the tax burden in Oklahoma would have been reduced to 38th among the 50 states compared with a ranking of 31st for Texas. This adjustment reduced the Oklahoma tax burden to a level which is 21 percent below the average for all states.

In short, the omission of the property tax item and the unusually high income level attributed to the "average" family tended to hide many of the differences in the tax structure and burden shown for all states.

The corrections to the computations contained in the *Money* article are important because, in its present form the article is damaging in that many businesses which are considering expanding to or locating a facility in another state, consider taxes paid by their work force to be an extremely important location factor. Obviously, the data contained in *Money* would weigh heavily against Oklahoma as a location for a new or expanding business.

[1]See: "Comparing State Taxes and Spending," Issue 2, Volume 8, *State Policy Reports*, State Policy Research, Inc., 7706 Lookout Court, Alexandria, VA.

Oklahoma's Gross State Product: 1963-1986

GERALD M. LAGE
JOHN SHELNUTT

REGIONAL ECONOMIES HAVE historically been described by employment data from establishment or household surveys or monetary measures of personal income, worker compensation or earnings allocated to the major industries of the Standard Industrial Classification (SIC). Regional output measures, if available at all, were estimated by local research units based on more or less standard methodology published in the regional economics literature.

This situation changed with the May, 1988, issue of the *Survey of Current Business*, as the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), released its estimates of Gross State Product for the years 1963 through 1986. For the first time, consistent estimates were available for all fifty states that totalled to relevant national income and product account concepts.

The purpose of this article is to analyze this new data base with a view toward measuring the extent of growth, structural change and diversification among the major economic sectors of the Oklahoma economy and among the individual industries comprising the Manufacturing sector. Data for more recent years have not yet been estimated.

Concepts and Overview of the Period

Gross State Product (GSP) is defined to be the gross market value of all goods and services attributable to the factors of production—labor and property—located in a state. Since returns from foreign business operations paid to U.S. residents are not relevant to states' production, the related national concept is Gross Domestic Product (GDP), rather than the more familiar and inclusive Gross National Product (GNP).

Conceptually, GSP can be viewed as the sum of payments to all factors of production as well as certain other costs of doing business such as indirect business taxes, capital charges and some forms of compensation not considered in labor earnings. Alternatively, GSP is the sum of value added in production by each economic unit. For business units, this would be sales plus inventory change, less purchases of materials and business services from other units. Estimation methodology varies for different sectors of the economy, but it is generally some combination of techniques based on these two alternative conceptualizations.

An illustration of differences caused by the use of Gross State Product estimates to measure economic activity rather than a major component only, say total compensation, may be observed in Table 1 reprinted from the *Survey of Current Business*, (May 1988), with additions for the State of Oklahoma. By either measure, total product or worker compensation, the relative economic loss of the nation's interior states was at least three percentage points from 1977 to 1986. As pointed out in the *Survey*, the relative economic decline of the interior regions from 1982 to 1986 was certainly dominated by the decline in regions dependent on energy-related mining. World oil price changes drastically affected the large producers by altering the value, as well as the volume, of domestic production and related economic activity.

As seen in the data for changes in the relative shares for the Southwest and Oklahoma for the subperiods of the 1977-86 period, the measurement of economy activity using value of output is subject to significantly larger variations than measurements of only the compensation component. During both the 1977-1982 "boom" and the 1982-1986 "bust," the changes in the all-industry gross regional product for the Southwest and Oklahoma exceeded the changes of the less inclusive measure of worker compensation.

TABLE 1

Gross State Product and Compensation as a Share of U.S. Total
All Industries
1967-1986

	Percent of U.S. Total				Percentage-point change in share of U.S. total		
	1967	1977	1982	1986	1967/77	1977/82	1982/86
Coastal Regions							
GSP	52.88	51.77	52.04	55.00	-1.11	0.27	2.96
Compensation	55.21	53.31	54.21	56.60	-1.90	0.90	2.39
Interior Regions							
GSP	47.12	48.23	47.96	45.00	1.11	-0.27	-2.96
Compensation	44.79	46.69	45.79	43.40	1.90	-0.90	-2.39
Southwest[a]							
GSP	7.27	9.43	11.50	10.26	2.16	2.07	-1.24
Compensation	6.71	8.33	10.23	9.41	1.62	1.90	-0.82
Oklahoma							
GSP	1.04	1.20	1.57	1.19	0.16	0.37	-0.38
Compensation	0.96	1.08	1.36	1.05	0.12	0.28	-0.31

Source: U.S. Department of Commerce, *Survey of Current Business*, May 1988, page 32.

[a]Region includes Texas, Arizona, New Mexico and Oklahoma.

Estimates of Gross State Product using the prices of the year of production are called "current-dollar" estimates. These estimates represent the ability to purchase and control the use of resources in the current year on the factor side and the value placed on current production on the demand side. Relative shares of nominal values are best suited to describe the state's ability to produce those products and services of greatest value in consumption, investment and trade and to adapt to the aggregate demands of society.

Estimates of production adjusted for price level changes relative to a base year, most frequently 1982 in current economic statistics, are called "constant-dollar" or "real" GSP estimates. These values more closely approximate volume changes and, over a short period with relatively constant productivity levels, command over physical units of resources. The estimates are frequently used to compare interregional trends in labor or total factor productivity or to project the volume of industrial activity.

An overview of the pattern of growth rates for Oklahoma, the Southwest Region[1] and U.S. economic activity using total GSP and total manufacturing product for various time periods and for both nominal and real growth is shown in Table 2. By point of reference, the years of peak economic output before a recessionary period during this time span are 1969, 1973 and 1979. These years (and any recent year for which data is available) provide convenient reference points for investigating relative shares since cyclical variations in the series are substantially accounted for.

The years from 1963-1973 were certainly ones of excellent absolute and relative growth for both Oklahoma and the Southwest. However, the next decade was even more favorable with real growth in the region nearly double the national average in the aggregate and nearly three times as rapid for real manufacturing output. Unfortunately, the 1982-1986 reversal of these trends was equally dramatic, especially for total state product in Oklahoma which averaged a *loss* of one percent per year in real terms. Note, however, that despite several years of divergent growth patterns, over the long run period from 1963 to 1986, state, regional and national growth rates show Oklahoma lagging a bit behind the region as a whole and staying somewhat ahead of the national averages when measured in total product.

The Manufacturing sector, especially, has made substantial relative advances in both the state and the region, but partly at the expense of absolute decreases in manufacturing output in other regions of the nation.

Considering the entire period from 1963 to 1986 covered by the new BEA estimates, the average annual growth rates (from semi-log linear regressions) illustrate the relative prosperity of the Southwest over the state and both of these regions over the nation as a whole. Oklahoma's GSP growth rate averaged over 10 percent per year in nominal terms, about one percentage point less than the entire Southwest regional average but 1.5 percentage points above the national rate.

Oklahoma Aggregate GSP Trends

The Department of Commerce estimates that Oklahoma Gross State Product measured in current dollars grew from $6.4 billion in 1963 to nearly $50 billion by the mid-1980s. The Gross Domestic Product of the nation grew from $600 billion to over $4 trillion. Since such figures have little meaning without a frame of reference, analysis of these growth patterns will be conducted in terms of distributive shares of the components of GSP and growth rates of regional and national industrial output.

Based on these new GSP estimates, Oklahoma's period of phenomenal growth can be dated from 1967 through 1982, a period in which the year-by-year growth rate in Oklahoma always matched or exceeded the U.S. increase in Gross Domestic Product. Toward the end of the period, 1979 through 1982, the state growth also exceeded the Southwest regional average as well. (See Figure 1.)

Relative growth patterns may also be inferred by observing the ratios of Oklahoma's product relative to regional and national aggregate production as described in Table 1. The state's share

TABLE 2

Comparative Growth Rates of Total Product and Manufacturing Output
Oklahoma, Southwest and the U.S.
Current and Constant (1982) Dollars
1963-1986

	Nominal Gross Regional Product			Nominal Gross Manufacturing Product		
	Oklahoma	Southwest (percent)	U.S.	Oklahoma	Southwest (percent)	U.S.
1963-1973	8.5	9.1	7.8	10.0	8.7	6.8
1973-1982	13.6	13.7	9.9	12.8	12.9	8.5
1974-1982	14.0	13.8	10.1	13.1	12.8	8.6
1980-1986	3.9	6.4	7.5	4.2	5.6	6.0
1982-1986	1.1	5.3	7.7	3.4	5.7	6.8
1963-1986	10.4	11.2	8.9	10.5	10.3	7.2
1970-1980	12.3	13.3	10.0	12.4	12.8	8.9
In 1982 dollars:	**Real Gross Regional Product**			**Real Gross Manufacturing Product**		
	Oklahoma	Southwest (percent)	U.S.	Oklahoma	Southwest (percent)	U.S.
1963-1973	3.5	4.3	3.4	6.5	5.8	3.4
1973-1982	3.7	4.1	2.1	5.3	5.5	1.6
1974-1982	4.1	4.2	2.3	5.8	5.6	2.0
1980-1986	0.1	2.3	3.0	2.3	3.1	3.9
1982-1986	-1.0	2.7	4.5	4.2	5.3	6.5
1963-1986	2.8	3.9	2.7	5.2	5.2	2.6
1970-1980	2.9	4.4	2.8	5.6	6.2	3.0

Source: U.S. Department of Commerce, Bureau of Economic Analysis, data tapes.
AAPC = Average Annual Percentage Change, semilog regressions.

FIGURE 1

Gross Product; U.S., Southwest and Oklahoma

Annual Growth Rates

of national output rose sharply from just over one percent of GDP in 1966 to a peak of over 1.5 percent in 1982 before falling back again to only 1.2 percent in 1986. Relative to the Southwest region, Oklahoma's share slowly fell over the entire period to 1979, and then it rose only marginally through 1984 before plunging to a new historical low in 1986.

The "golden age" for recent state growth, if indeed one wishes to use such a descriptor, would obviously best describe the decade and a half from the mid-1960s through the 1970s. This fact is, of course, well known. The new data simply confirm how advantageous the particular constellation of economic factors were for state economic growth.

Trends in the Output of Oklahoma's Economic Sector

The changing distribution of relative shares of major goods-and services-producing sectors in nominal GSP reflects the ability of the state economy to adapt to changing patterns of demand and comparative advantage. The major stories in Oklahoma over the two decades of the GSP series are the rapid growth of services in the economy, the continued erosion of the relative value of Agriculture, Forest and Fishery output, the growth and decline of the Mining sector and the slow and somewhat erratic climb of Manufacturing. (See Table 3.) For comparative purposes, the relative shares of the major sectors are also reported in constant, 1982 dollars to provide an alternative indication of physical volume of output by adjusting the market value of output with a national price index as a deflator.

The single sector designated as "Services," including the activities related to health, business and professional services, has seen rapid and steady growth throughout the period under discussion. Oklahoma began the period with just over 9 percent of state product in this sector, a level 1.4 percentage points below the national average, and ended the period with a state share of 13.1

percent. That amount, however, is still 3.6 percentage points below the national average. A similar pattern of below average state shares, but more constant ratios and slower growth, tends to hold for the Wholesale Trade and Finance, Insurance and Real Estate Sectors. The remaining service-producing sectors—Retail Trade, Transportation, Communication and Public Utilities and Government are somewhat more important locally, as well as more constant as a proportion of the relevant total product.

The direct market value of the output of Oklahoma's Mining sector, which is almost exclusively oil and natural gas production, rose from an already substantially-above-average 13.4 percent share of the state economy to an astounding 20 percent at the peak of economic activity in 1982. The share has since fallen back to 10 percent with production and price declines, but even that share is still four times as high in Oklahoma as the U.S. average and in the traditional range of 1-2 percentage points higher than the Southwest average.

The relative importance of Mining output in constant dollar, real output terms is even much more striking. The 20 percent of output in actual dollars of the 1982 base year is a very substantial *decline* from the 30 percent share in 1963 as a result of both production declines and price increases. The 1982 to 1986 decline in value from 20 to 10 percent of current dollar Oklahoma output compares to the decline in output by volume from 20 to only 15 percent of real GSP.

The current dollar share of state output accounted for Agriculture, Forestry and Fishing declined from 5.4 percent in 1963 to 3.6 percent in 1986. That amount remains about 1.5 percentage points above the national share of 2.2 percent; which, by itself, was a substantial decline from the 3.7 percentage point share of U.S. GDP in 1963. In

TABLE 3

Gross Regional Product
Distributive Shares
1963-1986

	United States Gross National Product (percent)					Southwest Gross Regional Product (percent)				
	1963	1972	1977	1982	1988	1963	1972	1977	1982	1988
Gross State Product	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, Forestry and Fishing	3.7	3.1	3.0	2.9	2.2	4.7	3.5	2.9	2.5	2.2
Mining	2.2	1.7	2.6	4.3	2.3	11.8	7.7	10.9	16.4	9.3
Construction	4.8	5.3	5.0	4.5	4.7	5.1	6.1	6.8	5.9	5.9
Manufacturing	28.1	24.4	23.8	20.4	19.7	16.7	16.8	17.2	14.8	15.1
Transportation, Communication & Public Utilities	9.2	9.0	9.1	9.3	9.4	10.6	9.9	9.4	9.5	10.6
Wholesale Trade	6.7	7.0	7.1	7.1	7.0	6.5	7.1	6.9	7.1	7.0
Retail Trade	9.7	10.0	9.9	9.3	9.7	9.9	10.3	9.9	8.7	9.6
Finance, Insurance & Real Estate	14.4	14.6	14.3	15.3	16.6	13.3	13.8	13.0	12.6	14.0
Services	10.6	12.1	12.9	14.9	16.7	9.7	11.2	11.2	12.0	14.5
Government	10.6	12.8	12.3	12.0	11.7	11.7	13.6	11.8	10.5	11.8

	Oklahoma Gross State Product Current Dollars (percent)					Oklahoma Real Gross State Product 1982 Dollars (percent)				
	1963	1972	1977	1982	1988	1963	1972	1977	1982	1988
Gross State Product	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, Forestry and Fishing	5.4	5.1	3.5	4.0	3.6	4.0	3.7	2.5	4.0	4.4
Mining	13.4	8.7	12.2	19.9	10.4	30.8	27.4	21.9	19.9	14.6
Construction	4.8	5.1	5.7	4.7	4.3	7.3	5.0	5.8	4.7	3.9
Manufacturing	12.9	15.1	15.6	13.0	14.3	9.0	11.7	13.3	13.0	15.8
Transportation, Communication & Public Utilities	10.8	11.0	9.4	8.9	10.5	7.0	8.9	8.8	8.9	9.5
Wholesale Trade	6.5	6.4	6.5	6.5	6.1	4.2	5.1	5.7	6.5	6.4
Retail Trade	10.1	10.4	10.4	8.6	9.9	7.3	7.8	8.9	8.6	9.5
Finance, Insurance & Real Estate	13.3	12.6	12.0	12.1	13.5	9.0	9.5	10.9	12.1	12.0
Services	9.2	10.3	11.1	10.5	13.1	7.8	8.6	10.2	10.5	11.5
Government	13.6	15.3	13.6	11.8	14.3	13.6	12.3	12.0	11.8	12.4

volume terms, this natural resource sector has contributed a more steady 4 percentage point share of the physical volume of state output over the period.

Finally, among the goods-producing sectors, Manufacturing in Oklahoma displays a substantial growing trend through the 1960s and early 1970s. The price-adjusted manufacturing picture reveals an almost doubling of the physical volume of manufacturing output along a steady growth path from 1963 to 1986. Such a pattern is consistent with substantial productivity gains in manufacturing which allow more output with relatively slower growing inputs and product prices.

Construction, too, shows a pattern of a fairly constant share of output in value terms, but a substantial decrease in relative importance in real or volume terms.

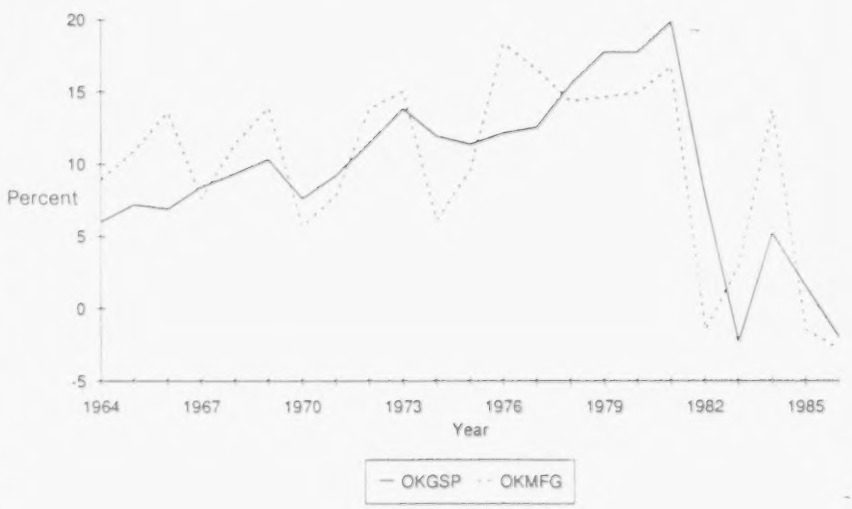
In comparison to the national pattern, Oklahoma's relative concentration of output remains most pronounced in the natural resource areas of Agriculture and Mining and in Government services. The Manufacturing sector has had the greatest movement toward the national average. The state is much more similar to the Southwest region, however, Agriculture, Mining and Government still retain above average concentrations even in the region.

Trends in GSP of Oklahoma Manufacturing Industries

The Manufacturing sector of Oklahoma managed to maintain a growth pattern exceeding the national manufacturing average for the entire period from 1963 to the peak in mid-1982. It also exceeded the growth rates for total GSP during most years of that period. (See Figure 2.) Year-by-year the percentage growth in state Manufacturing outpaced national Manufacturing and the state share of that aggregate doubled from just under one-half of one percent to just over one percent before falling back to levels of the last decade. The growth pattern was similar to the other three states of the Southwest region—Texas, Arizona and New Mexico—so Oklahoma's regional contribution remained within the band of 11.0 to 12.5 percent of the total. Using semilog trend regressions for estimation, average annual growth from 1963-1986 for Manufacturing in the U.S. was 7.2 percent; in the Southwest, 10.3 percent; and, for Oklahoma, 10.5 percent. Moreover, the series of annual growth rates for state manufacturing product, like the national and regional counterparts, exhibits considerably more variation than total GSP or the service-producing sectors.

FIGURE 2

Oklahoma GSP and Manufacturing Growth Rates



Looking at the relative share columns of the data in Table 4 (the second and third data columns), a picture of quite extreme state concentration in a few industries becomes evident. Compared to industry-by-industry shares in total national manufacturing output, Oklahoma Manufacturing is most heavily concentrated in just three industries—Petroleum products, Rubber and plastic products and Stone, clay and glass products. Perhaps surprisingly, the shares of the large aggregate Durable goods and Nondurables goods categories are virtually equal to the national shares. Many industries, on the other hand, appear to be considerably below the national average as determined by a broad range of competitive advantages in other parts of the country.

Within the Southest region, Oklahoma's concentration on durable goods production becomes apparent with relative concentrations in Motor vehicles and parts, Nonelectrical machinery, Fabricated metal products and the Stone, clay and glass products. Nondurable industries of regional concentration are Rubber and plastic products, Textile mill products and Paper and paper products.

The pattern of Oklahoma industrial growth over the two decades is broadly defined in terms of increasing importance of the durable goods production. The share of such goods in state Manufacturing output rose from 53 percent in 1963 to 61.5 percent in 1972 and then reversed somewhat to 57.4 percent in 1986. The share of the large Nonelectrical machinery industry rose from 12.0 percent of manufacturing output in 1963 to 17 percent by 1986 (nearly 20 percent at its peak). Motor vehicle production likewise grew extremely fast as shown by the rise in its output share from 2.2 percent to 6.7

percent over the period. However, the decline in the Primary metal products and Fabricated metal products industries was almost as rapid.

The output patterns among the Nondurable goods sector show major changes in the growth of the Rubber and plastic products sectors (especially the Tires and inner tubes component), the Paper and paper products industries and, to a smaller extent, the Chemical products industries. The analytically offsetting relative declines are most substantial in the Food products sector where the share of state Manufacturing output fell from 13.3 percent to 6.2 percent and Petroleum refining where the output share fell from 18.3 to 13.9 percent between the end points of the period.

The Question of Diversification

With the growth and change observed in state, regional and national economies since the initial date of the estimates in 1963, it is natural to wonder whether the Oklahoma economy has become more or less diversified as a result. Unfortunately, that concept is not uniquely defined and some intuitive notion must be used to guide any empirical measurement.

The concepts of diversification most often encountered refer to either a more uniform distribution of economic activity among and within major sectors of the economy or a movement toward some external distribution used for comparison.[2] Given the natural resource base of the state economy in the early 1960s, the choice of an external comparison to the national economic structure would appear to be a reasonable choice, while recognizing that identical structures would not be optimal either.

The index of diversification used here is defined as the sum of the absolute differences in shares of corresponding Oklahoma and U.S. (or Southwest) economic sectors or industries. If comparative economies are proportionally identical the index is zero, and if each is completely specialized (absolute concentration) in a different single sector the index is equal to the value two (2). Thus, a reduction of the index over time indicates smaller differences between shares. In this application the change is interpreted as a movement toward diversification.

Indices of diversification have been computed for both the aggregate GSP (using the 10 economic sectors as data) and manufacturing (using the 20 industrial breakdowns of Table 4) and with both the Southwest and U.S. economic structures as bases of external comparison. These data are shown in Figures 3 and 4.

The clearest conclusion of the diversification calculations is the existence of a trend toward diversification of the Oklahoma economy, in the sense of becoming more like the national economy, from the start of the period in 1963 through the mid-1970s. However, with the substantial structural changes following the oil price increases in 1973 and again in 1979, the economy again reverted toward historical resource-based patterns, at least until the national recessions of 1981-82. The index value that fell by 18 percent from 1963 to 1973 rose again by 13 percent from 1973 to 1982. Very little trend movement in the index using the regional external comparison is evident in either series.[3]

While no firm conclusion can be reached regarding diversification accompanying economic change, the impression that is left by examining more detailed data is one of a shifting source of state concentration rather than any

TABLE 4

Oklahoma Gross Manufacturing Product by Industry
1963-1986 Selected Years
Current Dollars

	Oklahoma 1986 GSP ($ mil.)	1986 Relative Shares OK/US (ratio)	1986 Relative Shares OK/SW (ratio)	1963	Distributive Shares 1972 (percent)	Distributive Shares 1982 (percent)	Distributive Shares 1986 (percent)
MFG	7,110	1.00	1.00	100.0	100.0	100.0	100.0
DUR	4,079	0.99	1.06	52.9	61.5	58.2	57.4
NDU	3,031	1.02	0.93	47.1	38.5	41.8	42.6
MNE	1,199	1.62	1.45	12.0	16.7	19.7	16.9
PET	990	2.95	0.95	18.3	12.1	14.1	13.9
RUB	629	2.69	2.82	4.5	5.5	8.0	8.8
FMP	549	1.12	1.28	9.0	10.2	11.5	7.7
SCG	486	2.23	1.39	9.1	7.1	5.6	6.8
ST1-5	3,853	—	—	52.9	51.6	58.8	54.2
MVE	473	1.11	3.25	2.2	3.2	2.0	6.7
FDP	444	0.72	0.79	13.3	8.3	6.5	6.2
EEE	422	0.55	0.55	5.6	9.1	7.2	5.9
OTE	372	0.79	0.72	5.5	5.4	4.2	5.2
PRT	365	0.78	0.97	5.4	4.7	4.7	5.1
ST6-10	2,076	—	—	32.0	30.8	24.6	29.2
CHE	235	0.42	0.31	1.6	1.3	3.8	3.3
PAP	208	0.69	1.40	1.2	2.0	2.3	2.9
INS	183	0.67	1.05	1.0	1.0	2.5	2.6
PMP	172	0.57	0.68	4.5	3.3	2.7	2.4
APL	129	0.72	0.95	2.3	3.1	2.0	1.8
MIS	88	0.73	0.82	1.1	1.9	0.9	1.2
LUM	88	0.41	0.45	2.2	2.8	1.3	1.2
FUR	48	0.42	0.76	0.7	0.8	0.7	0.7
TEX	27	0.17	1.29	0.1	1.2	0.3	0.4
LEA	4	0.16	0.27	0.1	0.3	0.1	0.1

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

MFG = Manufacturing
MNE = Nonelec. machinery
FMP = Fabricated metal
FDP = Food products
PRT = Printing/Pub.
INS = Instruments
MIS = Misc. products
TEX = Textile products
DUR = Durables
PET = Petroleum pro.
SCG = Stone, clay & glass
EEE = Electric equip.
CHE = Chemicals
PMP = Primary metals
LUM = Lumber products
LEA = Leather products
NDU = Nondurables
RUB = Rubber and plastics
MVE = Motor vehicles & parts
OTE = Other trans. equipment
PAP = Paper products
APL = Apparel products
FUR = Furniture

FIGURE 3

Diversification Index, Gross Product

Index = Sum of Absolute Differences in Relative Shares of Component. See Text.

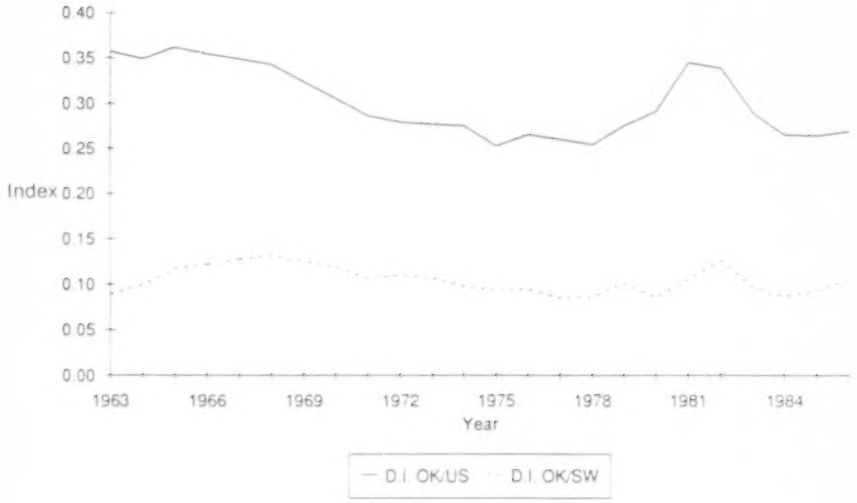
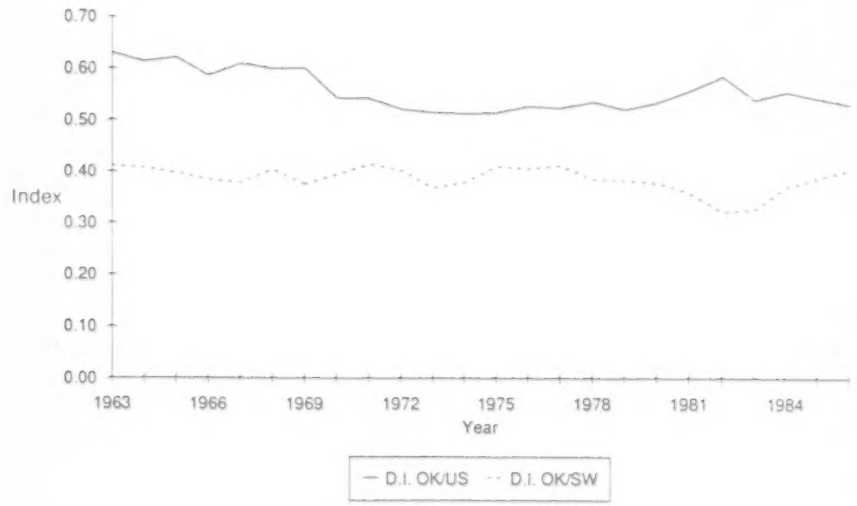


FIGURE 4

Diversification Index, Manufacturing Product

Index = Sum of Absolute Differences in Relative Shares of Component. See Text.



reduction in the extent of the concentration of economic activity.

Notes

[1]Defined here as Oklahoma, Texas, Arizona and New Mexico.

[2]H.L. Brewer and Ronald L. Moomaw, "A Note on Population Size, Industrial Diversification, and Regional Economic Instability," *Urban Studies* (1985) 22, pp. 349-354.

[3]Using a statistical concept of diversification from portfolio analysis, researchers for the Federal Reserve Bank of Dallas find that "In the 1970s, growth of the energy industry reduced the diversity of the Texas economy. Since 1979, however, growth of other industries, particularly those producing services, has increased the state's economic diversity. A declining energy industry also contributed to diversification in the 1980s." William C. Gruben and Keith R. Phillips, "Diversifying Texas: Recent History and Prospects," *Economic Review*, Federal Reserve Bank of Dallas, July 1989. While substantial differences exist between the Texas and Oklahoma economies, the implications of this study from the dominance of the energy industry in the 1970s would point toward a likely reversal of the trend toward diversification in the Oklahoma economy during this period as well.

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Using a Decision Support System To Manage Exchange Rate Risk

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Introduction

THE BUYING AND SELLING OF goods and services in international markets introduces to business decision-makers the problem of transacting in foreign currencies. When domestic importers and exporters conclude contracts payable in foreign currencies an uncertain price is effectively agreed upon regardless of what is stated in the contract. This uncertainty is caused by fluctuations in the rate of exchange between the currencies of different nations over a period of time. In the past seven years multinational companies have faced particularly volatile financial markets (Sesit, 1986). The uncertainty of volatile currency markets can be reduced by hedging or by purchasing contracts calling for the future delivery of the appropriate currency at a stated price. Hedging, however, may be costly in terms of both transactions fees and the lost opportunity to take advantage of favorable exchange rates.

Managing currency exchange rate risk essentially involves the decision of whether or not to hedge against rate fluctuations. There are several variables to consider in making this decision and the assignment of priorities for these variables is subjective. Semi-structured problems of this nature can be approached with automated decision tools, Decision Support Systems. This article illustrates the use of a particular Decision Support System, an automated version of T.L. Saaty's Analytic Hierarchy Process applied to the management of currency exchange risk (Saaty, 1982).

The Decision Support System

Decision Support Systems are interactive computer programs designed to help managers make decisions in complex environments where variables are difficult to define and subjective judgment is necessary. A Decision Support System which has proved valuable in this sense is *Expert Choice*, a software package developed by Decision Support Software in McLean, Virginia (Decision Support Software, 1983). *Expert Choice* is essentially an automation of the Analytic Hierarchy Process (AHP).

The AHP is a technique for structuring complex problems in a hierarchy and determining priorities for decision variables. The top level of the hierarchy consists of the goal and lower levels consist of factors, criteria, stakeholders and/or alternatives, depending on the particular problem at hand. The elements of each level are evaluated on a pairwise comparison basis, considering their relationship to a particular element in the level above. For example, if the problem is to decide whether or not to accept a particular job, the goal or top level of the hierarchy would be to make the best career decision. The second level of the hierarchy might consist of criteria such as salary, opportunity, personal satisfaction, etc. These criteria are compared with each other on a pairwise basis and evaluated. For example, the importance of salary relative to personal satisfaction in determining the best career choice is indicated by the decision-maker. The third level would then consist of job alternatives and Job A is compared pairwise with Job B and C relative to salary, opportunity and personal satisfaction. The comparison process at each level yields local priorities through matrix algebra. Mathematical computations can be performed manually or by using *Expert Choice*. Global-(with respect to goal) priorities are also calculated, which results in a ranking. In this example, the ranking indicates the best job choice. The consistency of individual judgments is also measured and tested. This provides some feedback regarding the validity of the decision-makers' responses.

Managing Exchange Rate Risk

Since the early 1970s, a managed floating exchange rate system has existed between the currencies of most nations. That is, the exchange rate between most currencies is set by supply and demand for the currencies in the market place. The float is managed in that Central Banks may step in to smooth large fluctuations and minimize shocks to the world economy.

What the managed floating currency standard means to importers and exporters is that rates can change quickly and in both directions. Table 1 shows foreign currency exchange rates for 1984 - 1986 and the first four months of 1987.

The volatility of exchange rates dictates that firms going through international currency markets can be hurt or helped by exchange rate changes. For example, if the value of the domestic currency goes up relative to the foreign currency, the importer of goods and/or services will benefit since it takes less of the domestic currency to buy the foreign currency needed to pay the contract price. However, exporters of goods and/or services will be hurt since the foreign currency needed to pay for the products will convert into less of the domestic currency. The opposite will occur if the value of the domestic currency decreases. This is called exchange rate risk, and to minimize exchange rate risk, forward market in foreign currencies developed. The forward rate is the exchange rate of the foreign currency to be delivered 30, 60, 90 or 180 days in the future. The forward rate reflects all anticipated changes in the exchange rate between the two currencies, but it allows the buyer to purchase insurance against any unanticipated changes in the exchange rate. This insurance is called hedging and may be costly, particularly in terms of opportunity cost where exchange rate fluctuations prove to be favorable to the buyer. In a study of 187 multinational companies, in fact, Stobaugh found that companies with sales under $100 million were very likely to overcompensate for potentially negative exchange rates (Stobaugh, 1972). Stobaugh also found that in many instances, the conservative attitude of the treasurer or decision-maker accounted for this hedging behavior much more than any company policy.

To demonstrate this problem, consider the SBC Corporation, a hypothetical company that has just entered an agreement to purchase computer equipment from a Japanese supplier and to pay 10,000,000 yen for it. Payment will be made in approximately three months upon delivery. The importer may choose to buy yen in the forward market now (hedge) at an assumed forward rate of 150 yen to the U.S. dollar. Alternatively, the importer may choose to take the exchange rate at the time of delivery. If the exchange rate is 145 at time of delivery (in three months), the decision to hedge is a good one as long as hedging costs are less than $2,299 ($66,667 versus $68,966). However, if the exchange rate is 155 at time of delivery, the decision to hedge has an opportunity cost of $2,151 ($66,667 versus $68,966) in addition to hedging costs. For this reason, it is important for firms engaged in international business to attempt to predict unanticipated changes in the exchange rate in order to make informed decisions in risk management.

Illustration

The management of exchange rate risk involves choosing among two alternatives, to hedge (purchase a forward contract) or not to hedge. This choice is made by guessing at what the exchange rate will be at the time the appropriate currency is necessary. This guess is a subjective assessment of the likelihoods of future unanticipated events which would affect currency values. It is similar to guesses made about future interest rates in that there are many variables to consider and assigned probabilities are a function of the particular decision-maker's beliefs.

There are several types of decision models available for this type of decision. For example, a decision tree incorporating expected values of assigned

TABLE 1

Foreign Exchange Rates of Selected Countries
(currency units per dollar)

Country/Currency	1984	1985	1986	1987 Jan.	1987 Feb.	1987 Mar.	1987 April
Australia/dollar	87.94	70.03	67.09	66.09	66.77	68.17	71.19
Brazil/cruzeiro	1,841.50	6,205.10	13.05	15.58	18.08	20.56	22.59
Canada/dollar	1.30	1.37	1.39	1.36	1.33	1.32	1.32
China, P.R./yuan	2.33	2.94	3.46	3.73	3.73	3.73	3.73
France/franc	8.74	8.98	6.93	6.20	6.08	6.11	6.03
Germany/deutsche mark	2.85	2.94	2.17	1.86	1.82	1.84	1.81
Hong Kong/dollar	7.82	7.79	7.80	7.77	7.80	7.80	7.80
Japan/yen	237.45	238.47	168.35	154.83	153.41	151.43	143.00
Sweden/krona	8.27	8.60	7.13	6.62	6.50	6.42	6.32
United Kingdom/pound	133.66	129.74	146.77	150.54	152.80	159.23	162.99

Source: Board of Governors of the Federal Reserve System. *Federal Reserve Bulletin*. Washington, D.C.: July 1987, p. A68.

priorities and varying exchange rates may be used. Alternatively, a minimax strategy may be used where the decision-maker identifies the worst outcome for each decision alternative and then chooses the least harmful of these worst cases. These types of decision models may not be optimal or efficient, however, since the decision-maker is required to assign weights or priorities to a number of ill-defined variables. This system also can be cumbersome to implement manually although use of electronic spreadsheets can facilitate the process.

The AHP as automated in *Expert Choice* offers many advantages over other multiple attribute decision tools. Two important ones are first, the required structuring of a problem into a hierarchy which allows the decision-maker to consider carefully the elements of the decision and second, the use of pairwise comparison process to establish priorities. The pairwise comparison process avoids the direct assigning of probabilities or likelihoods to elements, instead allowing them to be assigned indirectly by comparing each element with every other.

To illustrate how this Decision Support System might be used to make a decision about exchange rate risk, the problem is first arranged into a hierarchy. This particular hierarchy has three levels: the *goal* (to predict the future exchange rate), the *criteria* (variables which cause changes in exchange rates) and *alternatives* (various likely future exchange rates). Using *Expert Choice*, the decision-maker builds the hierarchy in an interactive mode on a computer. Inputs to *Expert Choice* in response to queries about this hierarchy will result in a prediction, based on detailed judgments by the decision-maker, of the priorities or likelihoods of the alternative exchange rates. The decision to hedge can then be based on this information.

Identification of the variables comprising the second level of this hierarchy may well be the most difficult step. Many variables, ill-defined by nature, are thought to influence exchange rates. Moreover, these variables may be different, depending on environmental factors, such as the countries involved and the status of foreign markets. The AHP is a flexible tool which can accommodate changes in variables easily for different decisions. To keep this illustration simple, four variables or criteria have been selected. These are the Balance of Payments position (BOP), speculation over future currency values (SPEC), domestic economic and political conditions (DPCOND) and Central Bank intervention (INTERVEN). The lower level of the hierarchy consists of various exchange rates. For this illustration, the yen is chosen. Possible alternative rates at some future date are 145, 150, 155 and 160. This hierarchy is shown in Figure 1, an *Expert Choice*, printout.

Once the hierarchy for the problem is structured, the next step is to evaluate the elements at each level. *Expert Choice* allows the decision-maker to evaluate a pair of variables in terms of likelihood, preference or importance. In this illustration, criteria are compared based on the importance of one versus another in predicting future rates. For example, the decision-maker indicates the relative importance of Balance of Payments (BOP) position versus future speculation (SPEC) in determining rates. In turn, each variable is compared with every other variable with choices indicating a range of equal importance to strongly more important. Pairwise comparisons then are made at the third level of the hierarchy. The different exchange rates are evaluated in terms of their likelihood based on the decision-maker's beliefs about the particular criterion considered. For example, the decision-maker may believe that the deficit in the Balance of Payments between the United States and Japan will continue to grow which would indicate the likelihood that the dollar will buy fewer yen in the future. Or, if the decision-maker predicts political uncertainty in Japan caused by upcoming elections, the likelihood that

FIGURE 1

To Predict the Future Exchange Rate

Goal
L = 1.000
G = 1.000

BOP	SPEC	DPCOND	INTERVEN
L = 0.176 G = 0.176	L = 0.075 G = 0.075	L = 0.574 G = 0.574	L = 0.176 G = 0.176
145 L = 0.467 G = 0.082	145 L = 0.095 G = 0.007	145 L = 0.068 G = 0.039	145 L = 0.346 G = 0.061
150 L = 0.277 G = 0.049	150 L = 0.160 G = 0.012	150 L = 0.144 G = 0.083	150 L = 0.346 G = 0.061
155 L = 0.160 G = 0.028	155 L = 0.277 G = 0.021	155 L = 0.221 G = 0.127	155 L = 0.209 G = 0.037
160 L = 0.095 G = 0.017	160 L = 0.467 G = 0.035	160 L = 0.567 G = 0.325	160 L = 0.098 G = 0.017

L = Local Priority G = Global Priority
145 = Yen Exchange Rate 150 = Yen Exchange Rate
155 = Yen Exchange Rate 160 = Yen Exchange Rate
BOP = Balance of Payments Position
DPCOND = Domestic Economic and Political Conditions
INTERVEN = Central Bank Intervention
SPEC = Speculation Over Future Currency Values

a dollar will buy more yen in the near future increases.

To show *Expert Choice* derives priorities from the pairwise comparisons, the results of the authors' judgments are included in Figure 1. The L refers to local priority and G refers to global priority. The AHP uses matrix algebra to calculate the local priorities based on the judgments made. The local priorities at each level add to one. The local priority for each variable is multiplied by the local priority for the variable it is related to in the level above, to obtain the global priority. For example, the local priority for the relative importance of Balance of Payments position (BOP) in predicting the future exchange rate is .176 or 17.6 percent. Since the authors' judgment is due to the expected Balance of Payments position then the exchange rate of 145 yen to the dollar is most likely (local priority of 46.7 percent) and the overall of global priority for this exchange rate is .082 (.176 times .467).

Global priorities are then summed (in this example each possible exchange rate is related to each criterion) and overall priorities for each alternative are obtained as shown in Figure 2. Again, referring to our example, the global priorities for the exchange rate of 145, under each alternate criteria, are .082, .007, .039 and .061. These sum to a total likelihood of .189 for this exchange rate. The prioritization of these exchange rates shows the order of likelihood based on a consideration of the criteria. Managers can use the most likely exchange rate as the basis for their decision to hedge or not to hedge.

FIGURE 2

To Predict the Future Exchange Rate (leaf nodes sorted by priority)

Overall Inconsistency Index = 0.04

160	0.394
155	0.213
150	0.204
145	0.189
	1.000

Note: A second output from Expert Choice, showing global likelihoods for the currency exchange rates of Figure 1. Managers can use this output to help them decide whether or not to hedge in the futures market.

Multiplying the priority times the rate itself also derives an expected value and managers may choose to use this method. In this way, *Expert Choice* becomes a valuable decision tool for foreign exchange risk management.

Conclusions

The purpose of this article is to show how a Decision Support System can be used to make complex decisions in the area of exchange rate risk management. The assumption underlying this effort is that prediction of changes in rates, based on a detailed consideration of variables, allows the decision-maker to make the best decision regarding hedging. In the long run, this technique should help to minimize losses (or take advantage of profits) due to fluctuating exchange rates. *Expert Choice* is particularly valuable for this application since it allows the decision-maker to consider the relationships among the predictive variables.

Other applications in the area of foreign exchange are possible. Fluctuating rates make risk management even more complex for multinationals who are almost constantly in and out of various foreign exchange markets. For purposes of illustration, this article considered the simpler problem of exporters and importers looking to minimize loss on future contracts. Future research in this area can investigate other scenarios where Decision Support Systems and Expert Systems can be of use.

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